Society for Risk Analysis

Risk Analysis for Better Policies

2013 Annual Meeting

8-11 December
Hilton Baltimore
Baltimore, Maryland

Final Program

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Society For Risk Analysis Annual Meeting

2013 Final Program

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Meeting Highlights

Meeting Events! - All events take place at the Hilton Baltimore. Start with the opening reception on Sunday in the Key Ballroom South Foyer (8 December, 6:00-7:30 pm, Cash Bar), and continue to the closing Die Hard Risk Analyst - DHRA - T-Shirt Giveaway on Wednesday (11 December, 5:00-5:30 pm). The meeting includes three Plenary Sessions, and lunch on all three days.

Poster Reception!

This year's meeting will feature a poster reception with food and drinks in the Key Ballroom 7-12, on Monday evening from 6:00 to 8:00 pm. Poster set up starts at 3:00 pm, and poster presenters will be at their posters for questions and discussion during the reception. Vote for the best poster awards. Don't miss it!

AGAIN! Business Networking Breakfast - Tuesday, December 10, 7:30-8:15 am, Key Ballroom 12. All those interested in making business connections while attending SRA, come prepared with your 30 second commercial. Each participant will have 30 seconds to stand and let others know what type of business they're in, who their prospects are, and how others present can help them connect the dots. Make YOUR SRA experience really pay off! A continental breakfast will be available. Bring your business cards!

Oral Presenter's Reminder - See Page 4 for Hours

If you are an Oral Presenter at the meeting, don't forget to upload your presentation in the Speaker Ready Room (Mencken Room) at least 24 hours prior to your presentation.
If you have already uploaded your talk, come by the Ready Room to ensure it has been received and uploaded correctly.

Hilton Baltimore

401 W Pratt Street
Baltimore, Maryland 21201
443-573-8700; Fax: 443-683-8841

SRA 2013 Specialty Group Merit Award Winners

Decision Analysis & Risk
Maryam Tabibzadeh

Dose-Response
Michelle Deveau
Tomohisa Ishimaru

Ecological Risk Assessment
Jeffrey Song

Economics and Benefits Analysis
Daniel Herrera

Emerging Nanoscale Materials
Dwaipayan Mukherjee

Microbial Risk Analysis
Arti Kundu
Miao Wang

Risk and Development
Camila Zacharias

Risk Policy & Law
Xiang Liu

Security & Defense
Peiqiu Guan

SRA 2013 Student & International Award Winners

Mohammad Sepehr Assadian
Raghavendhran Avanasi Narasimhan
Hiba Baroud
Christian Beaudrie
Marissa Bell
Djillali Benouar
Casey Canfield
Wenwei Che
Elizabeth Connelly
Michelle Deveau
Amine El Haimar
Eric Guy Eller
Mustafa Elmontsri
Kang-Chih Fan
Raul Figueroa
Peiqiu Guan
Miao Guo
Kerry Hamilton
Daniel Herrera
Frauke Hoss
Tomohisa Ishimaru
Nicole Kain
Kale Kponee
Arti Kundu
Hsuan Chi Lin
Lexin Lin
Su-Yu-Liu
Xiang Liu
Dana Loomis
Hang Lu
Mahalia Miller
Abhinav Mishra
Tomoko Okada
Raghav Pant
Abel Pinto
David Nicolas Pluess
Bidya Prasad
Cyren Rico
Claude Saegerman
Ryan Scott
Tyler Scott
Piet Sellke
Mohamed Shereif
Dimitrios Stavrou
Maria Camila Suarez Paba
Maryam Tabibzadeh
Kerton Victory
Miao Wang
Chia-yun Wu
Tsung-Ta Wu
Junrui Xu
An Gie Yong
Krista Danielle Yu
Camila Zacharias
Kejun Zhu

Conference Events, Committee Meetings

Registration Hours
Hilton Baltimore - East Foyer

Sunday 8 December	4:00 - 6:00 PM
Monday 9 December	7:00 AM - 5:00 PM
Tuesday 10 December	8:00 AM - 5:00 PM
Wednesday 11 December	8:00 AM - 4:00 PM

Sunday 8 December

Membership Committee
8:00-9:00 AM - Brent

SRA Council Meeting
Noon–5:00 PM - Calloway A&B

Editorial Staff Meeting
2:00–4:00 PM - Poe A&B

Publications Committee
4:00–5:00 PM - Poe A/B

Editorial Board Meeting
5:00-6:00 PM - Poe A/B

SRA Welcome Reception – (Cash Bar)
6:00–7:30 PM - Key Ballroom South Foyer

World Congress 2015 Meeting
7:45–8:30 PM - Chase

Monday 9 December

New Member, Fellows and International Members Breakfast
7:00-8:00 AM - Key Ballroom #4
All SRA Fellows as well as 2012 and 2013 New Members (badges with a New Member ribbon) are welcome to attend.

Regional Organization Chairs Breakfast/ Meeting
7:30-8:30 AM - Hopkins

Communications Committee
7:30-8:30 AM - Stone

Conferences and Workshops Committee
7:30-8:30 AM - Chase

Opening Plenary Session
8:30-10:00 AM - Key Ballroom #7-12

Specialty Group Meetings - *Pick up your box lunch by the SRA Registration Desk*
12:05-1:30 PM - See Page 4

Risk Management SG Officers
3:30-4:30 PM - Peale C

Decision Analysis and Risk SG
5:00-6:30 PM - Stone

Poster Reception
6:00–8:00 PM - Key Ballroom #7-12

Tuesday 10 December

Grad Student Breakfast
7:00-8:00 AM - Peale C

Audit Committee
7:00-8:30 AM- Chase

Business Networking Breakfast
7:30-8:15 AM - Key Ballroom #12

Specialty Group Chairs Breakfast
7:30-8:30 AM - Stone

Finance Committee
8:00-10:00 AM - Hopkins

SRA Awards Luncheon and Business Meeting
Noon-1:30 PM - Key Ballroom #7-12

SRA Council Meeting
6:30-10:00 PM - Key Ballroom #12

Wednesday 11 December

Plenary Session
8:30-10:00 AM - Key Ballroom #7-12

Plenary Luncheon
Noon-1:30 PM - Key Ballroom #7-12

T-Shirt Giveaway
Be a Die Hard Risk Analyst - Stay until the end of the sessions and receive a t-shirt
5:00–5:30 PM - East Foyer

Specialty Group Meetings

Monday, *12:05-1:30 PM*

All Specialty Group Meetings will take place during lunch time on **Monday 9 December**. Pick up your box lunch near the Registration desk and attend the meeting(s) of your choice.

12:05-12:30 pm

Dose Response, *Johnson A&B*
Economics & Benefits Analysis, *Latrobe*
Occupational Health & Safety, *Key Ballroom 6*
Risk Communication, *Peale A&B*
Security & Defense, *Ruth*

12:35-1:00 pm

Ecological Risk Assessment, *Johnson A&B*
Exposure Assessment, *Latrobe*
Foundations of Risk, *Key Ballroom 6*
Risk, Policy & Law, *Ruth*
Risk & Development, *Peale A&B*

1:05-1:30 pm

Decision Analysis & Risk, *Johnson A&B*
Emerging Nanoscale Materials, *Latrobe*
Engineering & Infrastructure, *Ruth*
Microbial Risk Analysis, *Peale A&B*

Specialty Group Mixers

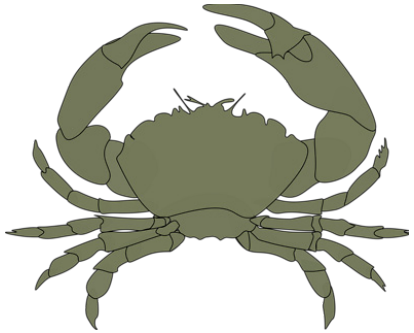
Tuesday 10 December

6:00 - 7:30 PM

DRSG, EASG, ERASG, MRASG, OHSSG - Tubman A
DARSG, EISG, RDSG, SDSG - Carroll A
EBASG, ENMSG, RCSG, RPLSG - Carroll B

6:00 - 8:00 PM

National Capital Area Chapter (NCAC) - Tubman B



Speaker Ready Room Hours

Hilton Baltimore - Mencken

Sunday	3:00 - 8:00 PM
Monday & Tuesday	7:00 AM - 5:00 PM
Wednesday	7:00 AM - 12:00 PM

Key to Specialty Group Designations

DARSG = Decision Analysis and Risk	FRSG = Foundations of Risk
DRSG = Dose-Response	MRASG = Microbial Risk Analysis
EASG = Exposure Assessment	OHSSG = Occupational Health & Safety
EBASG = Economics & Benefits Analysis	RCSG = Risk Communication
EISG = Engineering and Infrastructure	RDSG = Risk & Development
ENMSG = Emerging Nanoscale Materials	RPLSG = Risk Policy and Law
ERASG - Ecological Risk Assessment	SDSG = Security and Defense

Exhibition - Key Ballroom South Foyer

Monday 9 December ..... 9:45 AM - 3:30 PM
Poster Reception ..... 6:00 - 8:00 PM
Tuesday 10 December ..... 9:45 AM - 3:30 PM
Wednesday 11 December ..... 9:45 AM - 3:30 PM

Exhibitors

ABT Associates **Booth 1**
55 Wheeler Street
Cambridge, MA 02138
617-520-2425; Fax: 617-492-5219
www.abtassociates.com

Abt Associates is a mission-driven, global leader in research and program implementation in the fields of health, social and environmental policy, and international development. Known for its rigorous approach to solving complex challenges, Abt Associates is regularly ranked as one of the top 20 global research firms and one of the top 40 international development innovators. The company has multiple offices in the U.S. and program offices in more than 40 countries.

Bergeson & Campbell, PC and the Acta Group **Booth 12**
2200 Pennsylvania Avenue, NW, Suite 100W
Washington, DC 20037
202-557-3812; Fax: 202-557-3836
www.lawbc.com

Bergeson & Campbell, P.C. (B&C®) is a Washington, D.C. law firm focusing on conventional, biobased, and nanoscale industrial, agricultural, and specialty chemical product regulation and approval matters. The Acta Group, B&C's scientific and regulatory consulting arm with offices in Washington, D.C., Manchester, England, and Beijing, China, provides strategic, comprehensive support for global chemical registration, regulation, and sustained compliance.

ICF International **Booth 11**
9300 Lee Highway
Fairfax VA 22031
703-934-3000; Fax: 703-934-3740
www.icfi.com

Since 1969, ICF International (NASDAQ:ICFI) has been serving government at all levels, major corporations, and multilateral institutions. With more than 50 offices and more than 4,500 employees worldwide, we bring deep domain expertise, problem-solving capabilities, and a results-driven approach to deliver strategic value across the lifecycle of client programs. At ICF, we partner with clients to conceive and implement solutions and services that protect and improve the quality of life, providing lasting answers to society's most challenging management, technology, and policy issues. As a company and individually, we live this mission, as evidenced by our commitment to sustainability and carbon neutrality, contribution to the global community, and dedication to employee growth. Our website is www.icfi.com.

Toxicology Excellence for Risk Assessment (TERA) **Booth 13**
2300 Montana Avenue, Suite 409
Cincinnati, OH 45211
513-542-7475; FAX: 513-542-8674
www.tera.org

TERA is a non-profit organized for scientific and educational purposes. Our mission is to support the protection of public health by developing, reviewing and communicating risk assessment values and analyses; improving risk methods through research; and, educating risk assessors, managers, and the public on risk assessment issues.

US Environmental Protection Agency (US EPA) **Booth 10**
1200 Pennsylvania Avenue NW
Maildrop 8601P
Washington, DC 20460
703-347-8545
www.epa.gov/ncea/

EPA's National Center for Environmental Assessment (NCEA) is a leader in the science of human health and ecological risk assessment. NCEA addresses the needs of stakeholders by preparing technical reports and assessments that integrate and evaluate the most up-to-date research. These products serve as a major component of the scientific foundation supporting EPA's regulations and policies.

Join us to discuss the
2015 World Congress
Sunday 8 December
7:45-8:30 pm, Chase Room

Workshops - Sunday, 8 December

Sunday 8 December Full Day – 8:30 am-5:30 pm

(Lunch is on your own, 12:30-1:30 pm)

Workshop 1S: Benchmark Dose Modeling – Basic Methodologies

Organizer: J. Allen Davis, MSPH, U.S. Environmental Protection Agency
Instructors: J. Allen Davis, MSPH, U.S. Environmental Protection Agency; Jeff Gift, U.S. Environmental Protection Agency; Jay Zhao, Ph.D., U.S. Environmental Protection Agency

Cost: Onsite $325

The objective of this full-day workshop is to provide participants with interactive training on the use of the U.S. Environmental Protection Agency's (EPA) Benchmark Dose Software (BMDS) and its application to risk assessment. Use of BMD methods addresses many of the limitations of the traditional No Observed Adverse Effect Level (NOAEL) approach. BMD modeling involves fitting mathematical models to dose-response data in order to identify points of departure for use in human health risk assessments. In this interactive training workshop, EPA instructors will present: the basic theory of BMD modeling (including selection of a benchmark response level, model fitting and comparison), a demonstration of EPA's BMDS 2.4, and individual and group modeling exercises. Instructors will focus on the use of the new Excel-based BMDS Wizard templates that are provided with BMDS 2.4. The BMDS Wizard streamlines BMD analyses by allowing users to build BMDS inputs, run models, and import results in Excel. In addition to importing all results, it is capable of recommending best-fitting models using customizable decision criteria.

Participants are not required to have any previous BMD experience, but it is recommended that they familiarize themselves with basic concepts through the online tutorial and training materials provided on the EPA BMDS website (**http://epa.gov/ncea/bmds/training/index.html**).

Participants need to bring their own laptops to the workshop with BMDS 2.4 installed. The latest version of the software program can be found at: **http://epa.gov/ncea/bmds/**. In order to use the BMDS Wizard templates, Microsoft Excel must be installed on the user's laptops.

Workshop 2: Cumulative Risk Assessment: Addressing Combined Environmental Stressors

Organizer: Linda K. Teuschler, M.S., U.S. Environmental Protection Agency
Instructors: Linda K. Teuschler, M.S., U.S. Environmental Protection Agency; Amanda Evans, MSPH, Association of Schools of Public Health Research Fellow; Richard C. Hertzberg, PhD, Biomathematics Consulting; Margaret MacDonell, PhD, Argonne National Laboratory; Moiz Mumtaz, PhD, Agency for Toxic Substances and Disease Registry; Glenn E. Rice, ScD, U.S. Environmental Protection Agency; Jane Ellen Simmons, PhD. U.S. Environmental Protection Agency; J. Michael Wright, PhD. U.S. Environmental Protection Agency

Cost: Onsite $400

Cumulative risk assessment (CRA) addresses the impacts of multiple chemical and nonchemical stressors on real world individuals and communities, resulting in complex exposures for individuals and populations with a variety of vulnerabilities, in applications that range from environmental justice and community sustainability to individual health promotion and protection. Nonchemical stressors include biological and physical agents (e.g., microbes and noise) as well as socioeconomic stressors and psychosocial conditions (e.g., associated with natural disasters). Public concerns that can initiate CRAs include (1) elevated environmental measurements or biomonitoring data; (2) multiple sources of pollutants or stressors; and (3) changes in disease rates or patterns (e.g., leukemia cluster) or ecological effects (e.g., loss of wildlife diversity). This workshop focuses on human health and begins with an overview of three CRA elements: analysis, characterization, and quantification (as feasible) of the combined risks from multiple stressors. Teaching methods include lectures and hands-on exercises. Presentations highlight basic concepts, methods, and resources for conducting a population-based CRA. A central theme is integrating exposure and dose-response information with population characteristics during planning and scoping based on initiating factors. Vulnerability factors are addressed, e.g., diet/nutritional status, behaviors, genetic traits, socioeconomic status, sensitivities, and psychosocial stress. Methods for estimating human health risks are discussed and applied, including epidemiologic approaches and assessing the joint toxicity of chemical mixtures. In the exercises, participants develop chemical, biological and physical stressor groups using exposure and toxicity factors, link them with population vulnerability factors and conduct a risk characterization. Participants are asked to bring a calculator.

Workshop 3S: Probabilistic Risk Analysis with Hardly Any Data

Organizers & Instructors: Scott Ferson, Ph.D., Applied Biomathematics; Kevin Shoemaker, Ph.D., Stony Brook University

Cost: Onsite $325

This full-day tutorial introduces and compares methods for developing a probabilistic risk analysis when little or no empirical data are available to inform the risk model. The talks are organized around the basic problems that risk analysts face: not knowing the input distributions, not knowing their correlations, not being sure about the model itself, or even which variables should be considered. Possible strategies include traditional approximative methods and recent robust and bounding methods. Numerical examples are given that illustrate the use of various methods including traditional moment propagation, PERT, maximum entropy, uniformity principle, probability bounds analysis, confidence boxes, Bayesian model averaging, and sensitivity analysis. All of the approaches can be used to develop a fully probabilistic estimate useful for screening decisions and other planning. The advantages and drawbacks of the various approaches are examined. Essentially, the drawbacks are that bounding approaches may say too little about risks, and the rough and ready approximate methods may say too much. The discussion addresses how defensible decisions can be made even when little information is available, and when one should break down and collect some data and, in that case, what data to look for. The presentation style will be casual and interactive. Participants will receive a handout and CD of the illustrations used during the tutorial.

Workshop 4: Introduction to Monte Carlo Simulation for Exposure Assessments with Freeware Excel Tools

Organizers & Instructors: Tom Armstrong, CIH, PhD, TWA8HR Occupational Hygiene Consulting, LLC; Mike Jayjock, PhD, CIH, Jayjock Associates, LLC

Cost: Onsite $400

This workshop provides background and working experience with Monte Carlo Simulation (MCS) methods with a focus on exposure modeling assessments for consumer, general population and environmental applications. MCS methods generally 1) define calculation input probability distributions for a calculation algorithm, 2) generate random values of the inputs from selected probability distributions, 3) perform the modeling calculations using those random inputs and 4) aggregate and statistically evaluate the results. MCS methods have use in exposure assessment practice for estimating exposures, past, present or future from mathematical models. The results, as probability distributions, have utility in risk assessment by comparison to metrics of acceptable exposure.

The workshop will review basic MCS methods, and provide a synopsis of available software, both commercial and freeware options. Instructors will provide examples of the use of MCS methods in estimating exposures to toxic agents. Following the presentation of examples, participants will have increasingly detailed exercises designed for them to learn the use of the software, selection of input distributions, completion of the calculations, and interpretation of the calculation results. Prior to the course start, participants will be asked to provide examples for consideration for several selected to work through as in-class case studies. An understanding of the quantitative sensitivity analysis, as well as the difference of and need for additional uncertainty analyses will be developed. The critical relationship between variability and epistemic uncertainty as it relates to the inputs, results and final analysis will be covered in detail.

Participants will be expected to bring their own notebook PC with MS Excel and ability to enable macros, in order to keep notes on the handouts, and to run the software for the participant case studies.

Workshop 5: Eliciting Judgments to Inform Decisionmaking

Organizers: Aylin Sertkaya, Ph.D., Eastern Research Group, Inc.; Cristina McLaughlin, US Food and Drug Administration

Instructors: Aylin Sertkaya, Ph.D., Eastern Research Group, Inc.; Cristina McLaughlin, US Food and Drug Administration; Frank Hearl, M.S., PE, National Institute for Occupational Safety and Health (NIOSH); Michael Davis, Ph.D., Independent Consultant

Cost: Onsite $350

Decision makers must frequently rely on data or information that is incomplete or inadequate in one way or another. Judgment, often from experts and occasionally from non-experts, then plays a critical role in the interpretation and characterization of those data as well as in the completion of information gaps. But how experts or other stakeholders are selected and their judgments elicited matters – they can also strongly influence the opinions obtained and the analysis on which they rely. Several approaches to eliciting judgments have evolved. The workshop will cover topics ranging from recruitment, elicitation protocol design, different elicitation techniques (e.g., individual elicitations, Delphi method, nominal group technique, etc.) to aggregation methods for combining opinions of multiple individuals. The role of judgment elicitation and its limitations, problems, and risks in policy analysis will also be addressed. The workshop will include presentation of two case studies that will include a discussion of the selection process; elicitation protocol development, elicitation technique utilized, and the various issues that arose before, during, and after the elicitation process and

the manner in which they were resolved. The class will conclude with a hands-on exercise where participants will learn about calibration of experts using a mobile application.

Sunday Half Day Afternoon – 1 pm-5 pm

Workshop 10: Stakeholder's Involvement through Scientific Reasoning: Communicating Risk without Risk Communication

Organizers & Instructors: José Palma-Oliveira, Ph.D., University of Lisbon; Igor Linkov, Ph.D., US Army Engineer R&D Center

Cost: Onsite $325

The way risk communication is usually conceptualized and implemented has stakeholder persuasion as a primary objective, either explicitly or implicitly. The focus is on the "proper" way of communicating risk information given the quality of the scientific evidence of risk even though multiple ways of framing the information based on the psychometric, cultural or even mental models approaches, traditional approach to risk communication has failed in many cases resulting in significant stakeholder unease and stress. Stakeholders can be profoundly distrustful in relation to the conclusions of science and technological "computations", however they are sensitive to scientific reasoning, particularly when integrated in formal hypothesis generation and testing, data collection and decision modeling. These issues will be discussed in the workshop.

This workshop will focus on alternative approaches of bringing stakeholders on board in projects where risk is a significant driver for decision. This was proven to be successful in sorting environmental conflicts. Tools of decision analysis and risk communications will be presented and discussed in the context of siting problems in Portugal and Tunisia where the communities strongly show their opposition (even with riots with military forces involved) and environmental management decisions in the US. These cases will show how they were able to overcome the opposition and radically diminish or eliminate the psychosocial stress. Presentations and discussions will be done at basic level appealing to a broad audience with diverse background.

Workshop 11: Fundamental Concepts of Risk Assessment, Risk Perception and Risk Communication

Organizer: Branden B. Johnson

Instructors: Branden B. Johnson, Decision Research, Inc.; Darrell W. Donahue, Maine Maritime Academy

Cost: Onsite $350

Meetings and publications of the Society for Risk Analysis can be daunting to newcomers. More generally, risk analysis incorporates and spans many disciplines. It is often difficult for people, even those who work on some topic within risk analysis—be it toxicology, terrorist threat assessment or human behavior—to understand how their work fits into the risk analysis "big picture." Likewise, disciplinary training does not prepare people to understand, much less converse with, fellow practitioners. This workshop, taught by two experts with extensive histories in practice, government and academia, is designed to fill that gap. We introduce fundamental risk analysis concepts and terminology, including elements of risk management, risk assessment, and risk perception and communication. Exercises (microbial risk focused) will be used to allow the participants to apply these basic concepts of risk analysis. Upon completion of this course, students will understand the fundamental concepts of risk analysis. The workshop is suitable for first time Society for Risk Analysis Annual Meeting attendees, as well as all individuals new to risk analysis and those who have been involved in only a limited aspect of risk analysis. They will be prepared to engage comfortably in the range of conversations that distinguish Society for Risk Analysis Annual Conferences.

Workshop 12: Methods and Case Studies to Integrate Lifecycle Assessment (LCA) and Risk Analysis

Organizer: Elisabeth Gilmore, Ph.D., School of Public Policy, University of Maryland

Instructors: Joule Bergerson, Ph.D., Institute for Sustainable Energy, Environment and Economy, University of Calgary; Elisabeth Gilmore, Ph.D., School of Public Policy, University of Maryland; Paulina Jaramillo, Ph.D., Engineering and Public Policy, Carnegie Mellon University; Ketra Schmitt, Ph.D., Centre for Engineering in Society, Concordia University; Eric Williams, Ph.D. Golisano Institute for Sustainability, Rochester Institute of Technology

Cost: Onsite $325

This workshop aims to provide an introduction or refresher on lifecycle assessment (LCA) with hands-on activities and examples for how to integrate LCA into risk and decision analysis tools. LCA is a fundamental technique for evaluating the environmental effects associated with all stages of a process, product or

technology from the extraction of raw materials to disposal, known as a "cradle-to-grave" perspective. As a result, LCAs can extend the scope of characterizing risks for products and processes. In the first part of the workshop, we provide an overview of theory and tools for LCA. Second, we run a hands-on activity with the participants to conduct simple LCAs with process and economic input output methods and learn about the associated tools and databases. We look at coal with carbon capture and storage and personal computers. Third, we will compare the results from a series of recent case studies on shale gas to examine different approaches, data, and uncertainty. We conclude with a discussion of how LCA can be integrated into benefit-cost and risk analysis, including an example of carbon capture and storage. After this workshop, participants should be able to conceptualize and conduct a simple LCA using existing tools, evaluate and critique the results of LCAs, and apply LCAs for decision and economic analysis. Participants need to bring a laptop.

Workshops - Thursday, 12 December

Thursday Full Day 8:30 am-5:30 pm

Workshop 1T: Benchmark Dose Modeling – Advanced Topics

Organizer: J. Allen Davis, MSPH, U.S. Environmental Protection Agency
Instructors: J. Allen Davis, MSPH, U.S. Environmental Protection Agency; Jeff Gift, U.S. Environmental Protection Agency; Jay Zhao, Ph.D., U.S. Environmental Protection Agency
Registration: Onsite $325

The objectives of this full-day workshop are to provide participants with training on how to use the U.S. Environmental Protection Agency's (EPA) Benchmark Dose Modeling Software (BMDS) and related software programs to facilitate advanced BMD analyses. Advanced dose-response models can be used when incorporating the following specialized data types into human health risk assessments:

- Data on multiple independent tumors in a single bioassay (the MS_Combo model)
- Cancer data where survival rates differ due to exposure (the Multistage Weibull Time-to-Tumor [MSW] model)
- Repeated response data common to many neurotoxicity test guidelines (the Toxicodiffusion model)
- Concentration × time data (the ten Berge model)
- Categorical data on multiple endpoints from multiple bioassays and multiple species (the Categorical Regression [CatReg] model)

Specifically, EPA instructors will present: the theory behind each of the above advanced models, a demonstration of the various software packages used to run these models, and individual class modeling exercises.

Participants are expected to have a firm understanding of basic benchmark dose methods, either through work-related experience, or completion of at least the introductory portion of online training courses (**http://epa.gov/ncea/bmds/training/index.html**).

Participants need to bring their own laptops to the workshop with BMDS 2.4, the Multistage Weibull executable, and the R statistical package (version 2.15.0 or greater) installed (with necessary administrative rights). The latest version of the software programs can be found at: **http://epa.gov/ncea/bmds/, epa.gov/ncea/catreg**, and **http://www.r-project.org/**. Specific installation instructions for the software programs can be found on the websites or in documentation that can be downloaded from the websites.

Workshop 3T: Probabilistic Risk Analysis with Hardly Any Data

Organizers & Instructors: Scott Ferson, Ph.D., Applied Biomathematics; Kevin Shoemaker, Ph.D., Stony Brook University
Cost: Onsite $325

This full-day tutorial introduces and compares methods for developing a probabilistic risk analysis when little or no empirical data are available to inform the risk model. The talks are organized around the basic problems that risk analysts face: not knowing the input distributions, not knowing their correlations, not being sure about the model itself, or even which variables should be considered. Possible strategies include traditional approximative methods and recent robust and bounding methods. Numerical examples are given that illustrate the use of various methods including traditional moment propagation, PERT, maximum entropy, uniformity principle, probability bounds analysis, confidence boxes, Bayesian model averaging, and sensitivity analysis. All of the approaches can be used to develop a fully probabilistic estimate useful for screening decisions and other planning. The advantages and drawbacks of the various approaches are examined. Essentially, the drawbacks are that bounding approaches may say too little about risks, and the rough and ready approximate methods may say too much. The discussion addresses how defensible decisions can be made even when little information is available, and when one should break down and collect

some data and, in that case, what data to look for. The presentation style will be casual and interactive. Participants will receive a handout and CD of the illustrations used during the tutorial.

Thursday Half Day Morning – 8 am-Noon

Workshop 13: Advanced Workshop on Nanoscale Materials – What Can We Learn from Big Data Sets?

Organizers & Instructors: Jo Anne Shatkin, Vireo Advisors; Christine O. Hendren, Ph.D., Duke University, Center for the Environmental Implications of NanoTechnology (CEINT)

Cost: Onsite $350

The field of emerging nanoscale risk assessment is by nature one in which data, methods and policies are developing in parallel to address unique aspects of nanotechnology and nanomaterials that may require novel approaches to risk analysis. Therefore, to enable intelligent prioritization of research investments, assessment of risks, and ultimately decision-making for manufactured nanomaterials, iterative feedback is needed between researchers, risk assessors, decision makers, and those affected by decisions. This workshop will provide an immersive experience where participants can experience and contribute to this feedback process at the leading edge of the field of nano risk assessment.

This workshop is part of an investigation into the use of alternative testing strategies (ATS) in risk analysis for nanoscale materials. We will convene a diverse group of international experts to discuss how existing and novel in vitro assays may be applied in a "multiple models" approach to inform the risk assessment of novel nanoscale materials in assessing hazard, potency and exposure potential. This effort builds on a number of recent expert meetings regarding the development and use of high throughput screening (HTS) by examining the availability and applicability of existing and novel ATS methods for a multiple models approach to toxicity, environmental and exposure analysis of emerging nanoscale materials (ENM) in the risk analysis paradigm.

Through a collaboration with the OECD Working Party on Nanomaterials, SRA is evaluating the potential for a multiple models approach involving alternative testing strategies (ATS) for nanomaterial risk assessment. Examples of these strategies will be discussed, and findings from a preliminary analysis of data sets using ATS will inform a lively discussion how these methods may be used to inform risk assessment for nanomaterials in a multiple models approach. Speakers from U.S. and Canadian governmental agencies will frame this issues. Workshop participants will learn about the current and emerging testing strategies for nanomaterials, and how they can be used to inform a weight of evidence approach, incorporating them in risk assessment.

The main objectives of the workshop are to provide an interactive learning experience where participants work to collectively: 1) understand continuing critical gaps in understanding of the health and environmental risks posed by the use of ENM, and propose methods for filling the gaps, and 2) organize these gaps in terms of the decisions the information would ultimately support.

Plenary Sessions

All Plenary Sessions will be held in the Key Ballroom #7-12, Hilton Baltimore

Opening Plenary Session

Monday 9 December 8:30 – 10:00 AM, Key Ballroom #7-12

"Advice to Policy Makers: The Role of Risk Analysis"

Chairs: Robin Cantor, *Berkeley Research Group, LLC*; and Ortwin Renn, *Stuttgart Research Center for Interdisciplinary Risk and Innovation Studies*

Panelists Include:

Luis Cifuentes, *Catholic University of Santiago City*;
Anne Glover, *Chief Science Advisor to the EU*;
Sir Mark Walport, *Chief Science Advisor to the UK Government*

Discussion led by:

Ragnar Löfstedt, *Kings College, London*
George Gray, *President, SRA*

Wednesday 11 December, Morning Plenary, 8:30 – 10:00 AM, Key Ballroom #7-12

"Exploring Risk, Ethics, and Decision-Making: Three Cases"

Introduction of Session and Speakers: Ortwin Renn, *University of Stuttgart, Germany*

Sheri Fink, *New America Foundation*
"Hurricane Katrina: Hard Lessons on Ethical Emergency Medical Response in the Face of Disaster"

Raina McIntyre and Joanne Travaglia, *University of New South Wales, Australia*
"Experiences in Asia: Challenges and Trade-offs in Risk Management, Decision-Making and Public Health Responses to Natural Disasters"

Andreas Klinke, *University of Newfoundland, Canada*
"Designing Technology and Environmental Policies: Merits and Pitfalls of Participation and Deliberation in the Handling of Epistemic and Ethical Challenges in Risk Governance"

Comments: Sally M. Kane, *Independent Consultant and University of New South Wales*
"Questions for the Risk Community"

Wednesday 11 December, Plenary Luncheon, Noon – 1:30 PM, Key Ballroom #7-12

"Risk and Opportunity: Managing Risk for Development"

Norman Loayza, *The World Bank; Director, World Development Report 2014*

Monday 9 December 2013

7:00-8:00 AM **New Member, Fellows and International Members Breakfast** - *Key Ballroom #4*

8:30-10:00 AM **Plenary Session,** "Advice to Policy Makers: The Role of Risk Analysis" - *Key Ballroom #7-12*
Panelists Include: Luis Cifuentes, Anne Glover, Sir Mark Walport

10:00-10:30 AM **Coffee Break** - *Key Ballroom South Foyer*

	Key Ballroom #1	Key Ballroom #2	Key Ballroom #3	Key Ballroom #4	Key Ballroom #5
10:30 AM-Noon	**M2-A Symposium:** Cross-Disciplinary Methods for Research Synthesis, Part I	**M2-B Symposium:** Integrating Diverse Streams of Evidence for Chemical Assessments: Getting from Association to Causation, Part I	**M2-C:** Individual and Societal Risks and Morality	**M2-D:** Modeling for Chemical Risk Assessment (PBPK, Cumulative)	**M2-E Symposium:** World Cafe, Literally: Global Burden of Disease Caused by Foodborne Toxins
Noon-1:30 PM	Pick up your box lunch near the Registration desk and attend the specialty group meeting(s) of your choice. **See page 4 for details.** 12:05-12:30 PM - Dose-Response, Economics & Benefits, Occupational Health & Safety, Risk Communication, and Security & Defense Specialty Groups 12:35-1:00 PM - Ecological Risk Assessment, Exposure Assessment, Foundations of Risk, Risk Policy & Law, and Risk & Development Specialty Groups 1:05-1:30 PM - Decision Analysis and Risk, Emerging Nanoscale Materials, Engineering & Infrastructure, and Microbial Risk Analysis Specialty Groups				
1:30-3:00 PM	**M3-A Poster Platform:** Applications in the Expanding Field of Risk Management	**M3-B:** Integrating Diverse Streams of Evidence for Chemical Assessments: Getting from Association to Causation, Part II	**M3-C Symposium:** Foundational Issues in Risk Analysis, Part I	**M3-D:** Improving Quantitative Risk Assessment: New Strategies	**M3-E:** Fine Particulates: New Measurements and Questions Answered

3:00-3:30 PM **Coffee Break** - *Key Ballroom South Foyer*

3:30-5:00 PM	**M4-A Symposium:** Understanding Human Health Risks from Dietary Arsenic Exposure	**M4-B Symposium:** A New Look at the Toxicity of Bisphenol A and Public Health	**M4-C Symposium:** Foundational Issues in Risk Analysis, Part II	**M4-D Symposium:** Expecting the Unexpected: Risk Informed Policies & Procedures to Predict, Detect & Control Emerging Food Safety Risk	**M4-E:** Fuel, Asbestos, Dust, Spores & Death

6:00-8:00 PM **Poster Reception,** *Key Ballroom #7-12*

Monday 9 December 2013

7:00-8:00 AM **New Member, Fellows and International Members Breakfast** - *Key Ballroom #4*

8:30-10:00 AM **Plenary Session,** "Advice to Policy Makers: The Role of Risk Analysis" - *Key Ballroom #7-12*
Panelists Include: Luis Cifuentes, Anne Glover, Sir Mark Walport

10:00-10:30 AM **Coffee Break** - *Key Ballroom South Foyer*

	Key Ballroom #6	Peale A&B	Johnson A&B	Latrobe	Ruth
10:30 AM-Noon	**M2-F:** Global Scale Risks: Models & Processes of Risk Analysis	**M2-G:** Public Understanding of New Technology	**M2-H:** Bioterrorism Application	**M2-I Symposium:** Advances in Risk Models for Infrastructure Management and Investment	**M2-J:** Sustainability and Ecosystems
Noon-1:30 PM	Pick up your box lunch near the Registration desk and attend the specialty group meeting(s) of your choice. **See page 4 for details.** 12:05-12:30 PM - Dose-Response, Economics & Benefits, Occupational Health & Safety, Risk Communication, and Security & Defense Specialty Groups 12:35-1:00 PM - Ecological Risk Assessment, Exposure Assessment, Foundations of Risk, Risk Policy & Law, and Risk & Development Specialty Groups 1:05-1:30 PM - Decision Analysis and Risk, Emerging Nanoscale Materials, Engineering & Infrastructure, and Microbial Risk Analysis Specialty Groups				
1:30-3:00 PM	**M3-F:** Risk & Environmental Governance	**M3-G Symposium:** Risk Perception & Responses to Weather Hazards	**M3-H Roundtable:** Risk in Changed Circumstances: Views of the News Editors	**M3-I Symposium:** Risks of Transportation Disruptions and Transporting Dangerous Goods	**M3-J Symposium:** Risk, Costs & Benefits of Low Carbon Energy Technologies
3:00-3:30 PM	**Coffee Break** - *Key Ballroom South Foyer*				
3:30-5:00 PM	**M4-F Symposium:** Panel Discussion: Communicating Risk Uncertainty: What Have We Learned and Where Are We Going?	**M4-G:** Public Response to Natural and Technological Disasters	**M4-H:** Informing Policy with Risk Perception and Management	**M4-I:** Risk and Rewards of Natural Resources and Natural Disasters	**M4-J Symposium:** Who Benefits? Measuring the Distribution of Risk Policy Impacts

6:00-8:00 PM **Poster Reception,** *Key Ballroom #7-12*

Tuesday 10 December 2013

7:30-8:15 AM	**Networking Breakfast** - *Key Ballroom #12*				
	Key Ballroom #1	**Key Ballroom #2**	**Key Ballroom #3**	**Key Ballroom #4**	**Key Ballroom #5**
8:30-10:00 AM	**T1-A Poster Platform:** Traditional and Social Media Effects	**T1-B:** EPA'S IRIS: It's A New Program, Part I	**T1-C:** Managing Disasters I	**T1-D:** Zoonotic Diseases: Risk & Characterization of Human Illness	**T1-E:** Modeling Toxicants in the Environment
10:00-10:30 AM	**Coffee Break** - *Key Ballroom South Foyer*				
10:30 AM-Noon	**T2-A Symposium:** Cross-Disciplinary Methods for Research Synthesis, Part II	**T2-B:** EPA'S IRIS: It's A New Program, Part II	**T2-C:** Managing Disasters II	**T2-D:** Microbial Pathogens in the Environment: Assessment of Public Health Risks	**T2-E:** Big Data Application: Patterns & Effects
Noon-1:30 PM	**SRA Awards Luncheon and Business Meeting** - *Key Ballroom 7-12* Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday's Poster Reception. (Included in Registration Fee)				
1:30-3:00 PM	**T3-A:** Infrastructure Safety	**T3-B Symposium:** Proposed Methods for U.S. EPA's CRA Guidelines, Part I	**T3-C:** Authors Meet Critics: The Risk Society Revisited	**T3-D:** Understanding & Mitigating Risk of Illness: Pathogens in Human & Pet Food	**T3-E Symposium:** Risk 21 Tiered Approach for Exposure Estimation for Human Risk Assessments
3:00-3:30 PM	**Coffee Break** - *Key Ballroom South Foyer*				
3:30-5:00 PM	**T4-A:** PRA & Statistical Modeling Applications	**T4-B Symposium:** Proposed Methods for U.S. EPA's CRA Guidelines, Part II	**T4-C:** Public Health Risk & Sources	**T4-D:** Informing Risk Assessments of Engineered Nano-materials: Frameworks and Analysis	**T4-E:** Nano, Synthetic Biology, Animal Feed
5:00-6:00 PM	**T5-C Symposium:** Risk Analysis: Past, Present and Future, *Key Ballroom #3*				
6:00-7:30 PM	**Specialty Group Mixers** **New this year - The National Capitol Area Chapter Mixer - *see page 4 for details***				

Tuesday 10 December 2013

7:30-8:15 AM **Networking Breakfast** - *Key Ballroom #12*

	Key Ballroom #6	Peale A&B	Johnson A	Latrobe	Ruth	Johnson B
8:30-10:00 AM	**T1-F Symposium:** Coping with Emerging Threats I: New Approaches	**T1-G Symposium:** Social Aspects of Climate Change Governance	**T1-H:** Advances in Risk Modeling for Security and Defense	**T1-I:** Networked Infrastructure with Applications to Transportation and Energy	**T1-J Symposium:** New and Improved Regulatory Impact Analysis	**T1-K:** Tools for Assessing & Managing Risk
10:00-10:30 AM	**Coffee Break** - *Key Ballroom South Foyer*					
10:30 AM-Noon	**T2-F Symposium:** Coping with Emerging Threats II: New Approaches	**T2-G:** Temporal Issues in Risk Communication	**T2-H Symposium:** Risk and Strategic Decision Making in the Pentagon	**T2-I:** Multi-Criteria Decision Making for Infrastructure Management and Investment	**T2-J:** Updates in Ecological Risk Assessment Models	**T2-K:** Assessing Risks & Chemical Regulation
Noon-1:30 PM	**SRA Awards Luncheon and Business Meeting** - *Key Ballroom 7-12* Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday's Poster Reception. (Included in Registration Fee)					
1:30-3:00 PM	**T3-F Symposium:** Modernizing the Tools & Approaches to Improve Data Availability & Transparency	**T3-G:** Information Processing in Risk Communication: A Round-table Discussion	**T3-H Symposium:** Total Risk Associated with Chemicals and Materials in the Department of Defense	**T3-I:** Simulation Techniques and Applications to Explore Uncertainty and Risk	**T3-J Symposium:** Does Regulation Kill Jobs? Authors of a New Book Discuss the Evidence and Policy Responses	
3:00-3:30 PM	**Coffee Break** - *Key Ballroom South Foyer*					
3:30-5:00 PM	**T4-F:** Regulation, Risk & Transparency in the Pharmaceutical Sector	**T4-G:** Risk Information Seeking & Processing Behavior	**T4-H Symposium:** Validating Models of Adversary Behavior	**T4-I:** Risks of Nuclear Power Generation	**T4-J Symposium:** Tightening the Connection Between Risk Assessment, Decisions and Outcomes	**T4-K Symposium:** Risks in Social & Cultural Perspective: In Memory of Gene Rosa
5:00-6:00 PM	**T5-C Symposium:** Risk Analysis: Past, Present and Future, *Key Ballroom #3*					
6:00-7:30 PM	**Specialty Group Mixers** **New this year - The National Capitol Area Chapter Mixer - *see page 4 for details***					

Wednesday 11 December 2013

8:30-10:00 AM — **Morning Plenary,** "Exploring Risk, Ethics, and Decision Making: Three Cases" - *Key Ballroom #7-12*
Speakers Include: Sheri Fink, Raina McIntyre, Joanne Travaglia, Andreas Klinke, Sally Kane

10:00-10:30 AM — **Coffee Break** - *Key Ballroom South Foyer*

	Key Ballroom #1	Key Ballroom #2	Key Ballroom #3	Key Ballroom #4	Key Ballroom #5
10:30 AM-Noon	**W2-A:** Improving Risk Analysis & Information Quality	**W2-B Symposium:** Evaluating Causality in Epidemiological Studies	**W2-C:** Emerging Risk Assessment Challenges & Opportunities for the Developing Countries, Part I	**W2-D Symposium:** Multi-Criteria Analysis of Foodborne Zoonotic Disease Risks - International Perspectives	**W2-E:** Ground & Drinking Waters: New Methods, New Analysis
Noon-1:30 PM	**Plenary Luncheon,** "Risk and Opportunity: Managing Risk for Development" - *Key Ballroom #7-12* *Key Ballroom. Featuring: Norman Loayza, The World Bank, Director, World Development Report 2014*				
1:30-3:00 PM	**W3-A Symposium:** Risk Assessment, Policy Learning & Economic Opportunities in Safer Chemical Decision-Making	**W3-B Symposium:** Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part I	**W3-C Symposium:** Emerging Risk Assessment Challenges & Opportunities for the Developing Countries, Part II	**W3-D:** New Attributory Prioritization of Quantitative Microbial Risk Assessment Methods	**W3-E:** Bioavailability & Biomonitoring
3:00-3:30 PM	**Coffee Break** - *Key Ballroom South Foyer*				
3:30-5:00 PM	**W4-A Symposium:** Characterizing Causality for Policy Decisions	**W4-B:** Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part II	**W4-C:** Risk Analysis Uncertainty & Decision-Making	**W4-D Symp:** Strategic Research Planning for Multiwalled Carbon Nanotubes (MWCNTs): Moving Towards RA that Inform Future MWCNT Risk Mgmt Decisions	**W4-E Symposium:** Occupational Exposure Assessment: Risk Characterization and Risk Communication
5:00-5:30 PM	**T-Shirt Giveaway** - *Registration Area, East Foyer* Stay and receive a free T-Shirt!				

Wednesday 11 December 2013

8:30-10:00 AM — **Morning Plenary,** "Exploring Risk, Ethics, and Decision Making: Three Cases" - *Key Ballroom #7-12*
Speakers Include: Sheri Fink, Raina McIntyre, Joanne Travaglia, Andreas Klinke, Sally Kane

10:00-10:30 AM — **Coffee Break** - *Key Ballroom South Foyer*

	Key Ballroom #6	Peale A&B	Johnson A	Latrobe	Ruth	Johnson B
10:30 AM-Noon	**W2-F Symposium:** What's New in Agency Peer Review: Best Practices Supporting Risk Assessment	**W2-G Panel Discussion:** Effective Risk Communication	**W2-H:** Improving Risk Models for Security and Defense	**W2-I Roundtable:** Could, and Should, SRA do more to promote the Creation and Use of Living Risk Assessments?	**W2-J:** Decision Frameworks for Invasive Species and Water Quality	**W2-K:** Building More Resilient Infrastructure
Noon-1:30 PM	**Plenary Luncheon,** "Risk and Opportunity: Managing Risk for Development" - *Key Ballroom #7-12* *Key Ballroom. Featuring: Norman Loayza, The World Bank, Director, World Development Report 2014*					
1:30-3:00 PM	**W3-F Symposium:** Global Catastrophic Risk		**W3-H:** All Hazards Modeling	**W3-I:** Integrating Human Factors into Engineering Risks	**W3-J Symposium:** Improving Maritime Risk Estimates Supporting Federal Regulatory and Policy Decisions	**W3-K Symposium:** Foundational Issues in Risk Analysis, Part III
3:00-3:30 PM	**Coffee Break** - *Key Ballroom South Foyer*					
3:30-5:00 PM	**W4-F Symposium:** Global Risk Governance	**W4-G Symposium:** The Naphthalene Research Program: from Problem Formulation to Risk Assessment	**W4-H:** Presenting Uncertainty to Inform Decision-Making		**W4-J Symposium:** Evaluating the Risk Reduction Outcomes of Regulation	
5:00-5:30 PM	**T-Shirt Giveaway** - *Registration Area, East Foyer* Stay and receive a free T-Shirt!					

Technical Program

Presenter's name is asterisked (*) if other than first author.

10:30 AM- Noon
Key Ballroom #1

M2-A Symposium: Cross-Disciplinary Methods for Research Synthesis, Part I

Chair: Lisa Robinson

10:30 am **M2-A.1**
Hypothesis-based weight of evidence: an approach to assessing causation and its application to regulatory toxicology
Rhomberg LR, Bailey EA
Gradient

10:50 am **M2-A.2**
Metals, mixtures, pathways: systematic review to support risk assessment
von Stackelberg K, Guzy E, Claus-Henn B
Harvard School of Public Health

11:10 am **M2-A.3**
Adapting expert elicitation methods for global study of foodborne disease
Hoffmann SA, Hald T, Cooke R, Aspinall W, Havelaar A
USDA Economic Research Service, Technical University of Denmark, Resources for the Future, University of Bristol University, Utrecht

11:30 am **M2-A.4**
A novel approach to attributing illness to food using consumption data and expert elicitation
Jessup A, Sertkaya A, Morgan K
Department of Health and Human Services/OASPE

10:30 AM- Noon
Key Ballroom #2

M2-B Symposium: Integrating Diverse Streams of Evidence for Chemical Assessments: Getting from Association to Causation, Part I

Chair: Kimberly Wise

10:30 am **M2-B.1**
Evolution of weight of evidence assessment in mode of action analysis
Meek ME
University of Ottawa

10:50 am **M2-B.2**
Judging the quality of evidence for REACH
Lewis RJ, Money C, Boogaard PJ
ExxonMobil Biomedical Sciences, Inc.

11:10 am **M2-B.3**
On the utility of criteria-based methods of causal inference
Weed DL
DLW Consulting Services, LLC

11:30 am **M2-B.4**
Integrating evidence: the importance of exposure and framing the question
Shirley SH, Grant RL, Honeycutt M
Texas Commission on Environmental Quality

10:30 AM- Noon
Key Ballroom #3

M2-C Individual and Societal Risks and Morality

Chair: Frauke Hoss

10:30 am **M2-C.1**
Moral aspects in the perception of societal risks
Bassarak C, Pfister HR, Böhm G
Leuphana University Lueneburg; University Bergen

10:50 am **M2-C.2**
What do government and non-profit stakeholders want to know about nuclear fuel cycle? A semantic network analysis approach
Li N, Brossard D, Scheufele DA*
University of Wisconsin-Madison

11:10 am **M2-C.3**
Involuntary personal, individual and societal risk in relation to risk control policies
Hartford W, Hartford D
Hartfit Division of Nutritional Health Education

11:30 am **M2-C.4**
What guides spending on risk mitigation: perceptions or statistics?
Hoss F, Vaishnav P
Carnegie Mellon University

10:30 AM- Noon
Key Ballroom #4

M2-D Modeling for Chemical Risk Assessment (PBPK, Cumulative)

Chair: Audrey Turley

10:30 am **M2-D.1**
A harmonized PBPK model of hexavalent chromium in rats and mice
Sasso AF, Schlosser PM
US Environmental Protection Agency

10:50 am **M2-D.2**
Multiscale mechanistic modeling of the respiratory toxicodynamics of engineered nanoparticles
Mukherjee D, Botelho D, Sarkar S, Gow AJ, Schwander SS, Chung KF, Tetley TT, Zhang J, Georgopoulos PG
Chemical Engineering, Rutgers University

11:10 am **M2-D.3**
Development of a PBPK model for ETBE and TBA in rats and its application to discern relative contributions to liver and kidney effects
Brinkerhoff CJ, Salazar KD, Lee JS, Chiu WA
Oak Ridge Institute for Science & Education, ORD/NCEA-IRIS, US EPA, Washington DC, US EPA, Research Triangle Park, NC

11:30 am **M2-D.4**
Considering buffers in cumulative risk assessments
Evans AM, Rice GE, Teuschler LK, Wright JM
Oak Ridge Institute of Science and Education, US Environmental Protection Agency

10:30 AM- 12:10 PM
Key Ballroom #5

M2-E Symposium: World Cafe, Literally: Global Burden of Disease Caused by Foodborne Toxins

Chair: Felicia Wu

10:30 am **M2-E.1**
Foodborne epidemiology reference group: chemical and toxins task force
Gibb HJ
Tetra Tech Sciences

10:50 am **M2-E.2**
Lead: global burden of disease
Carrington C
US Food and Drug Administration

11:10 am **M2-E.3**
Cadmium: parameters for the estimation of global burden of disease
Zang Y, Carrington CD
US FDA-CFSAN

11:30 am **M2-E.4**
Aflatoxin and cyanide: global burden of disease
Wu F, Liu Y
Michigan State University

11:50 am **M2-E.5**
Peanut allergen: global burden of disease
Bolger PM, Ezendam J
Exponent, Washington DC, National Institute for Public Health and the Environment, The Netherlands

Don't forget to attend the Specialty Group Meeting of your choice 12:05 - 1:30 pm (see page 4 for details) after picking up your box lunch at the SRA Registration Desk

Technical Program

Presenter's name is asterisked (*) if other than first author.

10:30 AM- Noon
Key Ballroom #6

M2-F Global Scale Risks: Models & Processes of Risk Analysis
Co-Chairs: Mark Stillman, Gregory Kiker

10:30 am **M2-F.2**
An integration of multiple paradigms for integrated assessment of climate policy
*Gerst MD, Wang P, Ding P, Borsuk ME**
Dartmouth College

10:50 am **M2-F.3**
Florida, sea level rise and decision analysis: choosing between the devil and the deep blue sea
Kiker GA, Linhoss A, Munoz-Carpena R, Frank K, Fischer R, Linkov I
University of Florida, Mississippi State University, US Army Corps of Engineers

11:10 am **M2-F.4**
Project fox: taming asteroid risks
Reinhardt JC, Chen X, Liu W, Manchev P, Paté-Cornell ME
Stanford University

11:30 am **M2-F.5**
Risk-based need assessments to enhance enterprise program management offices
Stillman M
Consultant

10:30 AM- Noon
Peale A&B

M2-G Public Understanding of New Technology
Co-Chairs: Cindy Jardine, Dominic Way

10:30 am **M2-G.1**
Recycled water and risk communication: how citizens evaluate new technologies for municipal water systems
Binder AR, Zechman EM
North Carolina State University

10:50 am **M2-G.2**
Informing science teachers' knowledge and preferences of low-carbon electricity technologies through a continuing education workshop
Fleishman LA, Bruine de Bruin W, Morgan MG
Carnegie Mellon University

11:10 am **M2-G.3**
Fractured discourse: social representations of shale gas development in the USA and Canada
Evensen DT, Stedman RC
Cornell University

11:30 am **M2-G.4**
Transition, trauma, and information: immigrant women's relationship with immunization risk communication
Kowal SP, Jardine CG, Bubela TM
University of Alberta

10:30 AM- Noon
Johnson A&B

M2-H Bioterrorism Application
Chair: Steve Bennett

10:30 am **M2-H.1**
A second look at bioterrorism scenarios for the Bioterrorism Risk Assessment (BTRA)
Middleton JK, Stoeckel DM, Nilsen M, Winkel D, Anderson D, Pals T
Battelle, Department of Homeland Security, Science and Technology Directorate

10:50 am **M2-H.2**
Indicators and warnings for biological events: enhanced biosurveillance through the fusion of pre-hospital data
Bennett SP, Waters JF, Howard K, Baker H, McGinn TJ, Wong DY
US Department of Homeland Security

11:10 am **M2-H.3**
Adversarial risk analysis with incomplete information: a level-k approach
Rothschild C, McLay LA, Guikema SD*
University of Wisconsin-Madison

10:30 AM- Noon
Latrobe

M2-I Symposium: Advances in Risk Models for Infrastructure Management and Investment
Chair: Shital Thekdi

10:30 am **M2-I.1**
Building an integrated assessment methodology for national infrastructure risk assessment due to climate hazards
Pant R, Thacker S, Hall JW, Barr S, Alderson D
University of Oxford, Newcastle University

10:50 am **M2-I.2**
Developing a multi-phase, iterative and collaborative decision coordination process for transportation infrastructure management
Andrijcic E, Haimes YY
Rose-Hulman Institute of Technology, University of Virginia

11:10 am **M2-I.3**
An iterative value of information approach using scenario-based preferences for risk analysis of infrastructure systems
Hamilton MC, Lambert JH
University of Virginia

11:30 am **M2-I.4**
Robust supply chain investments for disaster preparedness and community resilience: an application to Rio de Janeiro, Brazil
Connelly EB, Lambert JH, Thekdi SA
University of Virginia, University of Richmond

10:30 AM- Noon
Ruth

M2-J Sustainability and Ecosystems
Chair: Wayne Landis

10:30 am **M2-J.1**
Health, risk, and sustainability: a taxonomy of relationships
Guidotti TL
Medical Advisory Services

10:50 am **M2-J.2**
Value of information models and data collection in conservation biology
Colyvan M
University of Sydney

11:10 am **M2-J.3**
Ecological risk and hydraulic fracturing: perception, assessment, and reality
Jones SM, Smith DW
Conestoga-Rovers & Associates

1:30 PM - 3:00 PM
Key Ballroom #1

M3-A Poster Platform: Applications in the Expanding Field of Risk Management
Chair: Steve Ackerlund

M3-A.1 Applying terrorism risk management concepts to enhance ISO 31000 risk management
Lathrop JF
Innovative Decisions, Inc.

M3-A.2 Cyber-security risk management
Panjwani S
THANE Inc

M3-A.3 An overview of applications of risk management principles in food safety and nutrition
Mojduszka EM
USDA/OCE/ORACBA

M3-A.5 EPA promotes risk based asset management as deployed in Springfield, Massachusetts
Schimmel JD, Lovely RK
Springfield Water and Sewer, Kleinfelder

M3-A.7 Analyzing and managing risks in research labs: how it is done *(also presented during Poster Session)*
Pluess DN, Groso A, Meyer T
Swiss Federal Institute of Technology Lausanne

1:30 PM - 3:00 PM
Key Ballroom #2

M3-B Integrating Diverse Streams of Evidence for Chemical Assessments: Getting from Association to Causation, Part II
Chair: Kimberly Wise

1:30 pm **M3-B.1**
Bradford Hill viewpoints and hypothesis-based weight of evidence
Goodman JE, Rhomberg LR
Gradient

1:50 pm **M3-B.2**
Integration three ways: classical versus mode of action approaches to weight of evidence determinations
Borgert CJ
Applied Pharmacology and Toxicology

2:10 pm **M3-B.3**
The EPA causality framework for assessment of air pollution-related health effects
Ross MA, Owens BO, Vandenberg JM
US Environmental Protection Agency

2:30 pm **M3-B.4**
Discussion: pulling the pieces together
Beck NB
American Chemistry Council

1:30 PM - 3:00 PM
Key Ballroom #3

M3-C Symposium: Foundational Issues in Risk Analysis, Part I
Co-Chairs: Terje Aven, Tony Cox

1:30 pm **M3-C.1**
Foundational issues in risk assessment and management
Aven T, Zio E
University of Stavanger, Norway

1:50 pm **M3-C.2**
Adapting risk management to reduce regret
Cox T
Cox Associates and University of Colorado

2:10 pm **M3-C.3**
Is risk analysis predictive? Prediction, validation, and the purpose(s) of risk analysis
Guikema SD
Johns Hopkins University

2:30 pm **M3-C.4**
What military strategy can teach us about risk-management and uncertainty
Ben-Haim Y
Technion

1:30 PM - 3:00 PM
Key Ballroom #4

M3-D Improving Quantitative Risk Assessment: New Strategies
Chair: Aamir Fazil

1:30 pm **M3-D.1**
The influence of dosing schedule on rabbit responses to aerosols of Bacillus anthracis
Bartrand TA, Marks HM, Coleman ME, Donahue D, Hines SA, Comer JE, Taft SC
Tetra Tech

1:50 pm **M3-D.2**
Risk-based sampling: I don't want to weight in vain
Powell MR
US Department of Agriculture

2:10 pm **M3-D.3**
Specifying input distributions: no method solves all problems
O'Rawe J, Ferson S, Sugeno M, Shoemaker K, Balch M, Goode J*
Applied Biomathematics

2:30 pm **M3-D.4**
Mixing good data with bad
Shoemaker K, Siegrist J, Ferson S
Stony Brook University, Applied Biomathematics

1:30 PM - 3:00 PM
Key Ballroom #5

M3-E Fine Particulates: New Measurements and Questions Answered
Chair: Christopher Frey

1:30 pm **M3-E.1**
Comparison of predicted exposures versus ambient fine particulate matter concentrations
Jiao W, Frey HC
North Carolina State University

1:50 pm **M3-E.2**
Measurement and comparison of PM2.5 and CO microenvironmental exposure concentrations for selected transportation modes
*Jiao W, Frey HC**
North Carolina State University

2:10 pm **M3-E.3**
Sensitivity of estimated children PM2.5 exposure to activity patterns, and geographic and seasonal variations
Che WW, Frey HC, Lau AKH
The Hong Kong University of Science & Technology, North Carolina State University

2:30 pm **M3-E.4**
Mortality risk from personal exposure to PM2,5 and UFP in different transportation modes: travel by bus, drive a car, take the metro or ride a bicycle?
Aguila IE, Jimenez RB, Ruiz P*
Universidad Andres Bello

Monday Sessions Sponsored by Specialty Groups

M2-A	*EBASG*	*M3-E*	*EASG*	*M4-F*	*RCSG*
M2-B	*DRSG*	*M3-F*	*RPLSG*	*M4-H*	*SDSG*
M2-C	*DASG*	*M3-G*	*RCSG*	*M4-I*	*EISG, RDSG*
M2-H	*SDSG*	*M3-I*	*EISG*	*M4-J*	*EBASG, Society for Benefit-Cost Analysis*
M2-I	*EISG*	*M3-J*	*EBASG*		
M3-B	*DRSG*	*M4-A*	*DRSG*		
M3-C	*DASG*	*M4-B*	*DRSG*		
M3-D	*MRASG*	*M4-E*	*EASG*		

1:30 PM - 3:00 PM

Key Ballroom #6

M3-F Risk & Environmental Governance

Chair: Frederic Bouder

1:30 pm **M3-F.1**

Risk analysis for better policies - environmental risk governance for the green economy

Pollard SJT, Mauelshagen C, Prpich G, Lickorish F, Delgado JC, Jude S

Cranfield University

1:50 pm **M3-F.2**

Co-evolution of beliefs and networks in environmental risk policy: an advocacy coalition framework approach

*Henry AD, Dietz T**

University of Arizona

2:10 pm **M3-F.3**

New conceptual considerations on dynamic governance handling risks in public policy

Klinke A, Renn O

Memorial University of Newfoundland, University of Stuttgart

2:30 pm **M3-F.4**

Mapping the municipal risk information flow: a study based on the practice of risk and vulnerability analysis in Lund, Sweden

Lin L

Lund University

1:30 PM - 3:00 PM

Peale A&B

M3-G Symposium: Risk Perception & Responses to Weather Hazards

Chair: Julie Demuth

1:30 pm **M3-G.1**

Examining the role of personal experience on weather risk perceptions and responses

Demuth JL

NCAR and CSU

1:50 pm **M3-G.2**

Understanding public responses to hurricane risk messages

Morss RE, Demuth JL, Lazo JK, Dickinson K, Lazrus H, Morrow BH

National Center for Atmospheric Research

2:10 pm **M3-G.3**

Modeling hurricane preparedness and evacuation intention

Trumbo CW, Peek L, Meyer MA, Marlatt H, McNoldy B, Gruntfest E, Schubert W

Colorado State University, University of Miami, University of Colorado, Colorado Springs

2:30 pm **M3-G.4**

"Every single summer": mental models of hurricane risks, forecasts and warnings in Miami

Bostrom A, Morss RE, Lazo JK, Demuth JL, Lazrus H

University of Washington

1:30 PM - 3:00 PM

Johnson A&B

M3-H Roundtable: Risk in Changed Circumstances: Views of the News Editors

Chair: Steve Gibb

This session will focus on how risk assessment issues – whether emerging or long-standing concerns – are covered and communicated by key environmental news publications. A panel of science policy journalists will discuss trends in their coverage, whether risk assessment as a focus is being marginalized by other environmental concerns such as sustainability, and their view of the future evolution of risk approaches in light of recent National Academies' reports on harmonizing cancer and non-cancer approaches, the initiation of new EPA Cumulative Risk Assessment Guidelines, and emerging toxicity testing technologies. The editors will reflect on the challenges of covering contentious issues such as Bisphenol A (BPA) and climate change, how agency press policies may be changing their access to scientists and their ability to gather information, and how recent budget cuts are affecting federal risk assessment efforts. Each editor will present for 10 minutes and a moderated question and answer session will follow.

Science -- *Erik Stokstad* M.S. – Staff writer joined Science magazine in 1997. He covers environmental research and policy with a focus on natural resources and sustainability.

Risk Policy Report – *Maria Hegstad* M.S.J. – Managing Editor joined the publication in 2008 and manages all aspects of coverage including researching, writing and editing stories, covering SRA conferences, and writing for the InsideEPA.com website.

Chemical and Engineering News – *Cheryl Hogue* M.S. – Senior Correspondent, focuses on articles and social media regarding EPA regulation of chemicals and research, international climate change policy, and federal regulatory policies.

1:30 PM - 3:00 PM

Latrobe

M3-I Symposium: Risks of Transportation Disruptions and Transporting Dangerous Goods

Chair: Cameron MacKenzie

1:30 pm **M3-I.1**

A case study in estimating mitigated risk for safety regulators: hazardous materials transportation

Locke MS

Pipeline and Hazardous Materials Safety Administration

1:50 pm **M3-I.2**

Alternative strategies to Positive Train Control (PTC) for reducing hazardous materials transportation risk

Liu X, Saat MR, Barkan CPL*

University of Illinois at Urbana-Champaign

2:10 pm **M3-I.3**

Using PortSec for policy-making and risk-benefit balancing

Orosz M, Salazar D, Chatterjee S, Wei D, Zhao Y

University of Southern California

2:30 pm **M3-I.4**

Modeling resilience stochastic metrics with bayesian kernel methods: application to inland waterway networks

Baroud H, Barker K

University of Oklahoma

1:30 PM - 3:00 PM

Ruth

M3-J Symposium: Risk, Costs & Benefits of Low Carbon Energy Technologies

Chair: Danya McLamb

1:30 pm **M3-J.1**

The risk of increased GHG emissions from hydropower development in the Brazilian Amazon

*Faria F, Jaramillo P**

Carnegie Mellon University

1:50 pm **M3-J.2**

Large-scale biomass feedstocks: a potentially intermittent renewable resource with economic risk for biofuel producers

Morrow WR, Gopal A

Lawerence Berkeley National Laboratory

2:10 pm **M3-J.3**

Evaluating proliferation resistance of small modular nuclear reactors

Gilmore EA, Hendrickson P

University of Maryland

2:30 pm **M3-J.4**

Electricity and development: a risk based analysis of grid extension and distributed energy resources.

Murphy PM

George Washington University

3:30 PM - 5:10 PM

Key Ballroom #1

M4-A Symposium: Understanding Human Health Risks from Dietary Arsenic Exposure

Chair: Gail Charnley

3:30 pm **M4-A.1**

Dietary exposure to inorganic arsenic from food in general and rice in particular.

Fitzpatrick S, Carrington C

US Food and Drug Administration

3:50 pm **M4-A.2**

Metabolism and the toxicity of arsenic

Thomas D

US EPA

4:10 pm **M4-A.3**

A common mode of action for arsenical toxicity

Cohen SM

University of Nebraska Medical Center

4:30 pm **M4-A.4**

A risk assessment approach for inorganic arsenic that considers its mode of action

Clewell HJ, Gentry PR, Yager JW

Hamner Institutes for Health Sciences, ENVIRON International, University of New Mexico

4:50 pm **M4-A.5**

Noncancer risk assessment of epidemiological studies of arsenic and cardiovascular disease

Perez V, Garry MR, Alexander DD, Tsuji JS

Exponent

3:30 PM - 5:30 PM

Key Ballroom #2

M4-B Symposium: A New Look at the Toxicity of Bisphenol A and Public Health

Co-Chairs: Sara Henry, Rita Schoeny

3:30 pm **M4-B.1**

Regulation and science of BPA

Aungst JL

US Food and Drug Administration

3:50 pm **M4-B.2**

Human health risks related to the presence of BPA in foodstuffs: the assessment of the European Food Safety Authority (EFSA)

Castoldi AF, Husøy T, Leclercq C, Theobald A, Pratt I

EFSA, Italy, Norwegian Scientific Committee for Food Safety, Norway, Council for Research and experimentation in Agriculture, Italy

4:10 pm **M4-B.3**

Challenges and approaches for evidence integration regarding endocrine disruption, exemplified by the case of bisphenol A

Rhomberg LR

Gradient

4:30 pm **M4-B.4**

BPA by the numbers: how the media framed risk

Butterworth T

George Mason University

4:50 pm **M4-B.5**

A new look at the toxicity of bisphenol A and public health policy making

Henry SH, Aungst J, Castoldi AF, Rhomberg L, Butterworth T, Fitzpatrick J

Retired FDA, US FDA, European Food Safety Authority, Gradient Corp, Science journalist/investigative reporter,

5:10 pm **M4-B.6**

Panel discussion for a new look at the toxicity of bisphenol A and public health policy

Henry SH, Aungst J, Castoldi AF, Rhomberg L, Butterworth J

Retired FDA, US FDA, European Food Safety Authority, Gradient Corp, Science journalist/investigative reporter

3:30 PM - 5:00 PM

Key Ballroom #3

M4-C Symposium: Foundational Issues in Risk Analysis, Part II

Co-Chairs: Elisabeth Pate-Cornell, Roger Flage

3:30 pm **M4-C.1**

Concerns, challenges and directions of development for the issue of representing uncertainty in risk assessment

Flage R, Aven T, Zio E, Baraldi P

University

3:50 pm **M4-C.2**

On black swans and perfect storms

Pate-Cornell ME

Stanford University

4:10 pm **M4-C.3**

How often should safety critical valves be tested?

Abrahamsen EB, Asche F, Gelyani A, Guikema S*

University of Stavanger, Norway, Johns Hopkins University

4:30 pm **M4-C.4**

What are the effects on safety of using safety standards in major hazard industries?

Abrahamsen EB, Asche F, Milazzo MF

University of Messina

3:30 PM - 5:10 PM

Key Ballroom #4

M4-D Symposium: Expecting the Unexpected: Risk Informed Policies & Procedures to Predict, Detect & Control Emerging Food Safety Risk

Chair: Karin Hoelzer

3:30 pm **M4-D.1**

Risk communication: preparing for the unexpected

DeWaal CS

Center for Science in the Public Interest

3:50 pm **M4-D.2**

Produce industry perspective: predicting the unpredictable

Gombas D

United Fresh

4:10 pm **M4-D.3**

Application of quantitative microbial risk assessments to address critical and emerging food safety issues

Pradhan AK

University of Maryland, College Park

4:30 pm **M4-D.4**

Using geospatial risk assessment to forecast produce contamination potential

Oryang D, Fanaselle F, Anyamba A, Small J

Food and Drug Administration, Center for Food Safety and Applied Nutrition, NASA Goddard Space Flight Center

4:50 pm **M4-D.5**

Listeria monocytogenes and produce - a previously discounted public health risk

Hoelzer K, Pouillot R

FDA, Center for Food Safety and Applied Nutrition

3:30 PM - 5:00 PM

Key Ballroom #5

M4-E Fuel, Asbestos, Dust, Spores & Death

Chair: Shawn Sager

3:30 pm **M4-E.1**

Specific Consumer Exposure Determinants (SCEDs) for fuel and lubricant scenarios

Zaleski RT, Qian H, Money CM, Rohde A

ExxonMobil Biomedical Sciences Inc., CONCAWE

3:50 pm **M4-E.2**

Cumulative exposures to asbestos fibers from dropped ceiling installation and maintenance

Boelter FW, Xia Y, Persky JD

ENVIRON International

4:10 pm **M4-E.3**

Evaluation of a simple steady-state model: estimating resuspended particles in indoor air

Nemickas H, Sager S, Navon D, Hubbard T*

ARCADIS

4:30 pm **M4-E.4**

A risk model for inhaled toxins and spores associated with Stachybotrys chartarum

Prasad B, Sungar N, Lennon E

Drexel University

3:30 PM - 5:00 PM

Key Ballroom #6

M4-F Symposium: Panel Discussion: Communicating Risk Uncertainty: What Have We Learned and Where Are We Going?

Chair: Cindy Jardine

3:30 PM **M4-F.1**

Strategies to engage knowledge users in understanding best practices for communicating about risk characterized by uncertainty

Driedger SM, Jardine CG

University of Manitoba

3:50 PM **M4-F.2**

Communicating environmental health risk uncertainty: a systematic review of the literature

Jardine CG, Driedger SM

University of Alberta

3:30 PM - 5:10 PM

Peale A&B

M4-G Public Response to Natural and Technological Disasters

Co-Chairs: Andrew Binder, Ann Bostrom

3:30 pm **M4-G.2**

Risky business: engaging the public in policy discourse on sea-level rise and inundation

Akerlof K, Rowan KE, La Porte T, Ernst H, Nataf D, Batten B, Rajasekar M, Dolan D

George Mason University, US Naval Academy, Center for the Study of Local Issues, Anne Arundel Community College

3:50 pm **M4-G.3**

Do I stay or do I go? Risk attitudes and evacuation decisions during a wildfire event

Wilson RS, McCaffrey S

The Ohio State University, USDA Forest Service

4:10 pm **M4-G.4**

A comparison of spontaneous associations with nuclear power underlying its acceptance before and after the Fukushima disaster, and of associations with nuclear and solar energy resources

Keller C, Sütterlin B, Siegrist M

ETH Zurich

4:30 pm **M4-G.5**

A longitudinal study of risk perception: the case of Chile

Zacharias CA, Bronfman NC, Cifuentes LA, Jimenez RB

Pontificia Universidad Catolica De Chile

4:50 pm **M4-G.6**

Risk-informed decision framework for built-environment: the role of ambiguity

Cha EJ, Wang Y

Georgia Tech

3:30 PM - 5:10 PM

Johnson A&B

M4-H Informing Policy with Risk Perception and Management

Chair: Heather Rosoff

3:30 pm **M4-H.1**

Structuring public private partnerships to encourage near-miss reporting

Dillon-Merrill RL, Tinsley CH

Georgetown University

3:50 pm **M4-H.2**

Public response to the terrorist attacks on Boston

Burns WJ, Slovic P, Sellnow T, Rosoff H, John R

Decision Research, University of Kentucky

4:10 pm **M4-H.3**

Public perceptions and trade-offs related to randomized security schedules

John RS, Scurich N

University of Southern California, University of California, Irivine

4:30 pm **M4-H.4**

To transaction online or to not transaction online: dilemmas involving privacy, security and identify theft

Rosoff H, John R, Cui T

University of Southern California

4:50 pm **M4-H.5**

DHS' Risk-Informed Quadrennial Homeland Security Review (QHSR)

Hawkins NL, Elkins DA, Janca A, Simons J, Montezemolo M, Piper J, Lesely T, Cox P, Susel I, Brzymialkiewicz C

Department of Homeland Security

3:30 PM - 5:10 PM

Latrobe

M4-I Risk and Rewards of Natural Resources and Natural Disasters

Chair: Royce Francis

3:30 pm **M4-I.1**

Confronting risks and benefits of energy system improvements in developing communities: the case of Canada's Northwest Territories

Kenney L, Arvai J

University of Calgary

3:50 pm **M4-I.2**

Estimating the probability of extreme low-wind periods in the central United States

Rose SM, Handschy MA, Apt J

Carnegie Mellon University, Enduring Energy LLC

4:10 pm **M4-I.3**

An assessment of the risks of building collapse for the City of Nairobi based on an investigation into East Africa's construction quality control processes.

Figueroa RH, Morgan MG, Fischbeck PS

Carnegie Mellon University

4:30 pm **M4-I.4**

Forensic disaster investigations (FORIN), a new approach to learn lessons from disasters: a case study of the 2001 Algiers (Algeria) flood and debris flow

Benouar D, Rovins J

University of Science and Technology Houari Boumediene (USTHB)

4:50 pm **M4-I.5**

Bayesian multiscale modeling of spatial infrastructure performance predictions

Reilly AC, Guikema SD

Johns Hopkins University

3:30 PM - 5:10 PM

Ruth

M4-J Symposium: Who Benefits? Measuring the Distribution of Risk Policy Impacts

Chair: Jonathan Levy

3:30 pm **M4-J.1**

Barriers to assessing the distribution of regulatory impacts

Robinson LA, Hammitt JK, Zeckhauser R, Linhart M

Harvard University

3:50 pm **M4-J.2**

Ranking distributions of environmental outcomes across population groups

*Sheriff G, Maguire K**

US Environmental Protection Agency

4:10 pm **M4-J.3**

Characterizing the distribution of recent and projected air pollution risk among vulnerable and susceptible individuals

Fann NF, Fulcher CM, Baker KR, Roman HA, Gentile MA*

US Environmental Protection Agency, Industrial Economics Incorporated

4:30 pm **M4-J.4**

Distributive weights: a defense

Adler MD

Duke University

4:50 pm **M4-J.5**

Using inequality measures to incorporate environmental justice into regulatory analyses at the US Environmental Protection Agency

Harper S, Ruder E, Roman HA, Geggel A, Nweke O, Payne-Sturges D, Levy JI*

Industrial Economics, Incorporated

6:00 - 8:00 PM

Key Ballroom #7-12

Poster Session

Caring for Consumers

P.1 Approach for developing Specific Consumer Exposure Determinants (SCEDs) for fuel and lubricant scenarios
Qian H, Zaleski R, Money C
ExxonMobil Biomedical Sciences, Inc.

P.2 Developing Specific Consumer Exposure Determinants (SCEDs) for assessing risk from chemicals used in consumer products
Money C, Corea N, Rodriguez C, Ingram J, Zaleski RT (Presented by Lewis J)*
ExxonMobil, SC Johnson, Procter and Gamble, Unilever

Decision Analysis & Risk

P.3 Mercury at Oak Ridge: outcomes from risk evaluations can differ depending upon objectives and methodologies
Burger J, Gochfeld M, Powers CW, Kosson D, Clarke J, Brown K
Rutgers University, Consortium for Risk Evaluation with Stakeholder Participation, Vanderbilt University

P.4 Food safety? A supply chain matter: probabilistic risk model based on the agro-food trade network
Convertino MC, Liang SL
University of Minnesota, Emerging Pathogens Institute at the University of Florida

P.6 Spatial analysis of risk perception. The case of Nuclear Power Plant
Dumitrescu A, Lemyre L, Pincent C
University of Ottawa

P.7 Risk perception in Libya: an overview
Elmontsri ME
Higher Institute of Occupational Safety and Health

P.8 Using quantitative bias analysis to characterize the uncertainty of inputs based on epidemiological data
Forshee RA, Lu Y, Izurieta H, Egger J, Cooney D, Lash T, Fox M, Brown J
US Food and Drug Administration, SciMetrika LLC, Emory University, Boston University, Harvard Pilgrim,

P.9 Analyzing the effects of unintended uses of commodities on phytosanitary risk: the example of US potato exports to Mexico
Fowler G, Erikson L, Ahern R, Caton B, Gutierrez W, Griffin R
United States Department of Agriculture

P.10 Interim action values for management of contaminants in soils for protection of human health risks
Gilmore J, Martinez C, Pagliarulo M
Ontario Ministry of Environment

P.11 Toxidromes - a decision-making tool for early response to chemical mass exposure incidents
Kirk M, Hakkinen P, Ignacio J, Kroner O, Maier A, Patterson J
University of Virginia

P.12 Risk analysis for networks with cooperative games
Mohri H, Takeshita J
Waseda University, National Institute of Advanced Industrial Science and Technology

P.13 Development of practical risk evaluation method with the example of traffic relevant environmental measures
Tokai A, Nakazawa K, Nakakubo T, Yamaguchi H, Kojima N, Sakagami M, Higuchi Y, Nagata Y, Ishimaru T
Osaka University

P.14 Air pollution in Salvador, BA, Brazil: an experience of risk analysis
Vianna NA, Saldiva PHN
University of Sao Paulo

P.15 Practice makes perfect: lessons and outcomes based on mode of action/human relevance framework application to case studies
Willis AM, Maier A, Reichard J, Haber L, Patterson J
Toxicology Excellence for Risk Assessment (TERA)

P.16 Weight-of-evidence evaluation of short-term ozone exposure and cardiovascular effects
Sax S, Prueitt R, Goodman J
Gradient

P.18 A Bayesian Belief Network (BBN) for modeling risk of adverse events due to the particulate matter in injectables
Kazemi R, Rahaman F, Urban J
US FDA

Dose Response

P.19 Determining a concentration-response relationship suitable for estimating adult benefits of reduced lead exposure
Brown LPM, Lynch MK, Post ES, Belova A
Abt Associates, Inc.

P.20 Assessing the impact of human metabolic variability on the health risks of occupational and environmental exposures to chloroform
Deveau M, Krewski D, Nong A
University of Ottawa, Health Canada

P.21 Ambient air pollution and allergic disease among children
Fan KC, Ho WC, Lin MH, Caffrey JL, Wu TT, Pan SC, Chen PC, Wu TN, Sung FC, Lin RS
China Medical University

P.23 Assessment of benzo(a)pyrene (a tobacco smoke toxicant) as a driver of genotoxicity
Fiebelkorn SA, Bishop EL, Breheny D, Cunningham FH, Dillon DM, Meredith C
British American Tobacco, Group R&D

P.24 A decision tool for assessing polymers and polymeric substances with potential hazards to human health
Gadagbui B, Maier A, Nance P, JayJock M, Franklin C
Toxicology Excellence for Risk Assessment

P.25 Development of chemical-specific adjustment factors for long-lived chemicals: PFOS as a model chemical
Haber LT, Dourson ML, Mohapatra A
TERA

P.26 Ambient air pollution and Attention Deficit Hyperactivity Disorder (ADHD) among children
Lin MH, Ho WC, Caffrey JL, Fan KC, Wu TT, Chen PC, Lin CC, Wu TN, Sung FC, Lin RS
China Medical University

P.27 Birth weight, household smoking and the risk of wheezing in adolescents: a retrospective cohort study
Ho WC, Lin MH, Caffrey JL, Lin YS, Fan KC, Wu TT, Chen PC, Wu TN, Sung FC, Lin RS
China Medical University, Taiwan

P.28 Development of practical quantifying method applicable for risk assessment of metabolic inhibition during co-exposure in workplaces by applying a PBPK model in humans
Ishimaru T, Yamaguchi H, Tokai A, Nakakubo T
Osaka University

P.29 The role of dietary zinc in cadmium nephrotoxicity
Lin YS, Caffrey JL, Ho WC, Bayliss D, Sonawane B
US Environmental Protection Agency

P.30 Assessment of the occupational exposure limit of p-Phenylenediamine for hairdressers
Lin HC, Guo YL, Wu KY
Institute of Occupational Medicine and Industrial Hygiene, College of Public Health, National Taiwan University, Taipei, Taiwan

P.31 The relationship of mercury exposure, omega-3 intake, and risk of chronic kidney disease
Lin YS, Ginsberg G, Sonawane B
US EPA

P.32 Workplace Environmental Exposure Level (WEEL) methodology with Octamethylcyclotetrasiloxane (D4) as a case study
Parker AL, Nance PM, Maier A
Toxicology Excellence for Risk Assessment

P.33 Workshop on lessons learned, challenges, and opportunities: the US Endocrine Disruptor Screening Program
Patterson J, Becker R, Borghoff S, Casey W, Dourson M, Fowle J, Hartung T, Holsapple M, Jones B, Juberg D, Kroner O, Lamb J, Marty S, Mihaich E, Rinckel L, Van Der Kraak G, Wade M, Willett C
Toxicology Excellence for Risk Assessment (TERA), American Chemistry Council, Integrated Laboratory Systems (ILS), National Institute of Environmental Health Sciences, Independent Consultant, Johns Hopkins University, Battelle, Dow AgroSciences, Exponent, Inc., The Dow Chemical Company, ER2, University of Guelph, Health Canada, Humane Society of the United States

P.34 Air pollution patterns may modify the effect of weight gain on lung function among adolescents
Wu TT, Chen LH, Ho WC, Lin MH, Pan SC, Fan KC, Chen PC, Wu TN, Sung FC, Lin RS
China Medical University

P.35 Residential and occupational exposure to wood treating operations and risk of non-hodgkin lymphoma: a meta-analysis
Williams BH, Pierce JS, Glynn ME, Johns LE, Adhikari R, Finley BL
Cardno ChemRisk

P.36 Residential and occupational exposure to wood treating operations and bladder cancer: a meta-analysis
Glynn ME, Pierce JS, Williams B, Johns LE, Adhikari R, Finley BL
Cardno ChemRisk

Ecological Risk

P.37 Identifying regional features of temperature variability using cluster analysis and quantile regression applied to the daily surface level observations
Timofeev AA, Sterin AM
RIHMI-WDC

P.38 Determining detection rates of environmental DNA sampling for monitoring the risk of invasive fish species
Song JW, Small MJ
Carnegie Mellon University

P.40 Long-term variability of wind regime in the atmosphere over the Arctic
Agurenko AO, Khokhlova AV
RIHMI-WDC

P.41 Metacommunity resilience of the Amazon Tropical Forest facing human and natural stressors
Convertino M, Munoz-Carpena R, Kiker G, Perz S
University of Minnesota, Emerging Pathogens Institute at the University of Florida

P.42 Design of ecosystem monitoring networks by value of information optimization: experiment in the Amazon
Convertino M, Munoz-Carpena R, Kiker G, Perz S
University of Minnesota, Emerging Pathogens Institute at the University of Florida

Economic & Benefit Analysis

P.43 Can game theory predict the human behavior on safety? From the viewpoint of an economic experiment
Makino R, Takeshita J
AIST

P.44 Cost-effectiveness of the decontamination activities in the evacuation zones due to the Fukushima nuclear accident
Oka T
Fukui Prefectural University

P.45 Evaluating the timing of benefits from abatement of short and long lived climate change species
Zheng JM, Gilmore EA, Sarofim MC
University of Maryland

P.46 Real systematic risk for modeling weighted prices as an asset for decision making
Anyika E, Weke PO, Achia TN
University of Nairobi

P.47 Design of institutional mechanisms for effective risk management: assignment of responsibility in the case of waste disposal
Farber GS
US EPA

Engineering & Infrastructure

P.48 Exploring the concept of transportation systems risks
Chikaraishi M, Fischbeck P, Chen M
The University of Tokyo

P.49 Recovery estimation model of thermal power plants damaged by complex hazards - case of the 2011 Tohoku-oki Earthquake
Yuyama A, Kajitani Y
Central Research Institute of Electric Power Industry

P.50 Constraint analysis for siting solar energy projects
Reid R, Loftis B, Dwyer S
Kleinfelder, Inc.

P.51 Hydraulic fracturing failure rates – key to understanding actual risks
Pawlisz AV
Conestoga-Rovers & Associates

Give me Some Numbers! Tox and Uncertainty Values

P.52 Provisional Advisory Level (PAL) development for superwarfarins (Brodifacoum and Bromidalone)
Stewart D, Glass-Mattie D, Dorman D, McConnell E, Adeshina F
University of Tennessee, Oak Ridge National Laboratory

P.54 Probabilistic cancer risk assessment for Aflatoxin B 1 with Bayesian statistics markov chain Monte Carlo Simulation
Liu SY, Chang CS, Chung YC, Chen CC, Wu KY
National Taiwan University

P.55 Potential impacts of uncertainty in the C8 Science panel exposure assessment for perfluorooctanoate
Avanasi Narasimhan R, Shin HM, Vieira VM, Bartell SM
UCI, UCD

Methods, Models & Data: Potpourri

P.56 Proposing a framework of QAAR approaches for predicting the toxicity of chemical substances: a case study on predicting and extrapolating the missing NOEL values
Takeshita J, Gamo M
National Institute of Advanced Industrial Science and Technology (AIST)

P.57 Comparative study of risk with nursing work in Japan and China
Maeda Y, Marui R, Yamauchi H, Yamaki N
Shizuoka University

P.58 Environmental attitudes and behaviours of university students: a case of study at a Chilean university
Heyl ME, Moyano E, Cornejo F, Cifuentes LA
Faculty of Enginnering, Pontifical Catholic University of Chile

P.59 DRAGON: a single risk assessment database to promote transparency and data sharing
Henning CC, Overton AJ, Marin K, Cleland JC, Turley AT
ICF International

P.60 Implementing systematic review for chemicals with large databases
Turley AT, Overton AJ, Marin K, Henning CC
ICF International

P.61 A pragmatic way of achieving High Sustainable Organization: governance and organizational learning in action in the public French sector
Merad M, Marcel F
INERIS

Microbial Risk Assessment

P.62 Modeling the relationship between post-vaccination hemagglutination inhibition (HI) titer and protection against influenza
Huang Y, Anderson S, Yang H
The US Food and Drug Administration

P.63 Risk factors identification for Toxoplasma gondii infection in meat products destined for human consumption
Guo M, Buchanan RL, Dubey JP, Hill D, Gamble HR, Jones J, Pradhan AK
University of Maryland

P.64 Scald and food safety risks posed by unsafe water, refrigerator, and freezer temperatures in residences of Meals On Wheels recipients in 4 US states
Hallman WK, Cuite CL, McWilliams RM, Senger-Mersich A
Rutgers, The State University of New Jersey

P.65 Biological weapons and bioterrorism threat assessment
Jyothikumar V
University of Virginia

P.66 Foodborne pathogens in leafy greens: data, predictive models, and quantitative risk assessments
Mishra A, Lambertini E, Pradhan AK
University of Maryland College Park

P.67 Quantitative risk assessment for Escherichia coli O157:H7 in fresh-cut lettuce
Pang H, Buchanan RL, Schaffner DW, Pradhan AK
University of Maryland, College Park, Rutgers University

P.69 Risk Assessments for Listeria monocytogenes and Salmonella spp. in Melons
Wang M, Lambertini E, Micallef SA, Pradhan AK
University of Maryland, College Park

Probabilistic Risk: Staff, Water and Statistics

P.70 Probabilistic risk assessment with the bayesian statistics markov chain Monte Carlo simulation
Wu KY, Chung YC, Chen CC, Hsiao CH
National Taiwan University

P.71 Probabilistic risk assessment of cisplatin for medical staff of medical centers in Taiwan
Chen YT, Chang CH, Chung YC, Chen CC, Wang GS, Wu KY
National Taiwan University

P.72 Probabilistic assessment of cancer risk for N-Nitrosodimethylamine in drinking water by using bayesian statistics with MarKov Chain Monte Carlo simulation
*Chang CH, Chuang YC, Chen CC, Wu KY**
National Taiwan University

P.73 Assessing the health risks of dimethylformamide in an occupational setting
Wu CH, Huang YF, Wu KY
National Taiwan University

Risk Communication

P.74 Atrazine effects on amphibians: is it safe to go back into the water?
Smith DW
Conestoga-Rovers & Associates

P.75 Public risk perception towards urban air pollution
Zhu KJ, Xu JH
Peking University

P.76 Applying Mental Modeling Technology™ to developing the communications research and analytics roadmap for Census Bureau
Kovacs DC, Thorne SL, Butte GE, Wroblewski MJ
Decision Partners, United States Census Census Bureau

P.77 The constitutive role of communication for coordinated safety behavior in an organization managing high-hazardous processes
Marynissen H, Ladkin D, Denyer D, Pilbeam C
Cranfield University

P.80 Irrational fears for radioactivity: qualitative and quantitative evaluation
Aoyagi M, Kanamori Y, Yoshida A
National Institute for Environmental Studies

P.81 Progress in new tools for participatory vulnerability analysis to climate stressors
Webler TW, Tuler SP
Social and Environmental Research Institute

P.82 Challenges associated with communicating multidimensional risk data to a diverse set of stakeholders
Wilson P, Kubatko A, Hawkins B, Cox J, Gooding R, Whitmire M
Battelle Memorial Institute, Department of Homeland Security Chemical Security Analysis Center

P.84 Utilizing need for affect and need for cognition from a dual-processing framework: measuring environmental policy preference by experimental design studies
Kim S-J
Colorado State University

P.85 Improving natural disaster risk communication strategies: characterizing public trust in institutions involved in natural disaster management in Chile
Zacharias CA, Jimenez RB, Bronfman NC
Universidad Andres Bello

P.86 Risk communication activities of health risks by the Japan EMF information center
Ohkubo C
Japan EMF Information Center

P.87 Kids + chemical safety: a tool for educating the public about chemicals
Nance P, Kroner O, Dourson M
Toxicology Excellence for Risk Assessment

P.88 Effect of information trustworthiness on cancer risk perception after a nuclear disaster
Kuroda Y, Iwamitsu Y, Takemura K, Ban N, Sakura O, Sakata N, Tsubono K, Nakagawa K
The University of Tokyo, Kitasato University, Waseda University

P.89 Investigating "consumer awareness" in evaluating food safety hazards related to beef in Japan
Kumagai Y, Hosono H, Sekizaki T
The University of Tokyo

P.90 Effects of changing frequency of heterogeneous stimuli over time on estimation of frequency
Kugihara N
Graduate School of Human Sciences, Osaka University

P.91 Rethinking risk data: ITER 2.0
Kroner O, Wullenweber A, Willis AM
Toxicology Excellence for Risk Assessment (ITERA)

P.92 Managing communication in times of crisis through ambiguity: a framework for crisis communication
Eller EG, Calderon AA
Stephenson Disaster Management Institute, Louisiana State University

P.93 Uneven recall and inaccurate risk assessments from reading balanced news articles of controversial risk topics: the role of exemplars and affect
Dixon GN
Cornell University

P.94 "Magical thinking" in high risk cancer families
Flander LB, Keogh LA, Ugoni A, Ait Oaukrim D, Gaff C, Jenkins MA
University of Melbourne

P.95 Two years since Fukushima accident. Do people still willing to support for the affected area?
Hosono H, Kumagai Y, Sekizaki T
The University of Tokyo

P.96 Burgers or tofu? Eating between two worlds: risk information seeking and processing during dietary acculturation
Lu H
Marquette University

P.97 Exploring the impact of negative emotions on information seeking about radioactive food contamination in Japan after March 11, 2011
Okada T, Inaba T
Hitotsubashi University

P.98 Numeracy and beliefs about the preventability of cancer
Steinhardt JS, Niederdeppe J, Lee T
Cornell University

P.99 Alternating hydrologic extremes: risk communication and weather whiplash
Trumbo CW, Peek L, Laituri M
Colorado State University

P.100 Risk perception of drinking water quality in a US-Mexico Border community
Victory K, Cabrera N, Larson D, Reynolds K, Latura J, Beamer P
University of Arizona, Mariposa Community Health Center

P.101 Natural disaster cognitive appraisals and disaster preparedness in immigrants and native-born in the Canadian context: a need for psychosocial considerations
Yong AG, Lemyre L, Pinsent C, Krewski D
University of Ottawa

P.102 Public collaboration on a 30-year commitment to assess superfund health outcomes in Butte, Montana
Ackerlund WS
Kleinfelder

P.103 Public response to information about the risk of cancer after the nuclear disaster in Fukushima
Sakata N, Kuroda Y, Tsubono K, Nakagawa K
The University of Tokyo

P.104 Crisis and emergency risk communication to family physicians in Canada
Kain NA
University of Alberta

Risk & Development

P.106 Risk management in Colombia: the challenge of development
Orozco G
Universidad del Norte

P.107 Selection of next-generation low global-warming-potential refrigerants by using a risk trade-off framework
Kajihara H
National Institute of Advanced Industrial Science and Technology

P.108 Contamination risks and effects on suburban areas by a ceramic and tiles factories: a case of study
Colon L, Monzon A, Demichelis S
National University of Lanus

Risk, Policy & Law

P.109 Setting a regulatory cleanup level for the emerging contaminant sulfolane
Farris AM, Buss SD, Cardona-Marek T
Alaska Department of Environmental Conservation and SPB Consulting

P.110 The role of statistical models in drinking water distribution system asset management
Rao V, Francis R
The George Washington University

P.111 SafeWater CBX: incorporating uncertainty and variability in benefits analysis
Stedge J, Brad F
Abt Associates

P.112 The balance between protection of human health and compliance with regulatory standards
Sager SL, Locey BJ, Schlekat TH
ARCADIS U.S., Inc.

Risky Eating

P.113 Probabilistic risk assessment for 2-Amino-1-Methyl- 6-Phenyl-imidazo[4,5-b]- Pyridine (PhIP) through daily consumption of high-temperature processed meats and fishes in Taiwan
Liu LH, Chan CC, Wu KY
National Taiwan University

P.114 An exposure and health risk assessment of metals in apple juice
Banducci AM, Tvermoes B, Bebenek I, Monnot A, Devlin K, Madl A
Cardno Chemrisk

P.115 Dietary, occupational, and ecological risk assessment of carbaryl and dimethoate
Chiang SY, Chang-Chien GP, Horng CY, Wu KY
China Medical U., Taiwan

P.117 Questionnaire survey on water ingestion rates for various types of liquid and the seasonal differences between summer and winter
Ohno K, Asami M, Matsui Y
National Institute of Public Health, Hokkaido University, Japan

P.118 Measurement of hand to mouth lead transfer efficiency - a simulation study
Sahmel J, Devlin KD, Hsu EI
Cardno Chemrisk

P.119 Probabilistic assessment of lifetime cancer risk for acrylamide through daily consumption of high-temperature processed foods in Taiwan with Bayesian Statistics Markov Chain Monte Carlo Simulation
Wu CY, Chang CH, Chung YC, Chen CC, Wu KY
National Taiwan University

Security & Defense

P.120 Phase I Impact assessment results for 1-bromopropane and 3-nitro-1,2,4-triazol-5-one (NTO)
Rak A, Vogel CM, Bass N
Noblis Inc., US Army Public Health Command

P.121 Quantitative approach to risk on fuel transportation pipelines
Parra LM, Munoz F
Universidad de los Andes

Late Breaking Posters

P.122 A new endophyte risk assessment model
Bromfield KB, Rowe AJ, Atapattu AA
Environmental Protection Authority

P.123 Nanoscale risk assessment and uncertainty quantification in atomistic simulations
Wang Y
Georgia Institute of Technology

P.124 Using portfolio optimization to select an optimal set of water security countermeasures
Bates ME, Shoaf H, Keisler JM, Dokukin D, Linkov I
US Army Corps of Engineers, Engineer Research and Development Center

P.125 Application of multi-criteria decision analysis to humanitarian assistance and disaster response: site suitability analysis
Bates ME, Linkov I, Clark TL, Curran RW, Bell HM
US Army Corps of Engineers - Engineer Research and Development Center, Pacific Disaster Center

P.126 Microbial contamination in poultry chillers estimated by Monte Carlo simulations
Holser RA
Russell Research Center

P.127 Challenges associated with practical environmental restoration risk assessment and management decisions for Perfluoroalkyl Substances (PFASs)
Phillips JK, Anderson JK
TRC Solutions; US Air Force

P.128 Application of socio-economic analysis for restriction and authorization of chemical in Korea
Lee YJ, Yang JI, Lee GW, Shin DC
Yonsei University

P.129 Development of exposure guidelines for chronic health effects following acute exposures to TICs
Winkel DJ, Hawkins BE, Roszell LE
Battelle Memorial Institute, US Army Public Health Command

P.130 Understanding risk: applying the CAUSE model in a content analysis of emergency management organizations coverage of hurricane Sandy
Kowalek D
Howard University

P.131 Communicating conservation with labels: experiment on the effectiveness of using IUCN categories for advocacy
Song H, Underhill JC, Schuldt JP
Cornell University, Johns Hopkins University

P.132 Treed exponential models for evaluating factors affecting nanomaterial dose-response and setting occupational exposure limits
Gernand JM, Casman EA
Penn State University

P.133 Quantitative assessment of in vivo toxicological interactions from criteria pollutant mixtures containing oxides of nitrogen
Datko-Williams L, Young B, Wilkie A, Madden M, Dubois JJ, Wichers Stanek L, Johns D, Oesterling Owens B
US Environmental Protection Agency, US Centers for Disease Control and Prevention

P.134 Trust in a wide variety of risk managers after a catastrophic disaster
Nakayachi K
Doshisha University

P.135 Diminishing risks of soil pollution in public spaces: a proposal for remediation
*Valentini M, Curra C, Demichelis SO**
Environment Laboratory, DDPY - UNLA

P.136 Bad decisions increases health risks: reopening of an abandoned asphalt plant a case of study
*Bracca M, Monzon A, Demichelis SO**
Environment Laboratory, DDPY - UNLA

P.137 Kinetics and micromechanics associated with crack growth in brittle materials
Djouder S, Chabaat M, Touati M*
Built Environment Research Laboratory, University of Sciences and Technology Houari Boumediene

P.138 Keeping track of nanotechnology in your everyday life: the nanotechnology consumer products inventory 2.0
Kuiken T, Quadros M
Woodrow Wilson Center, Virginia Tech

P.139 Review of health effects and toxicological interactions of air pollutant mixtures containing oxides of nitrogen
Madden M, Young B, Datko-Williams L, Wilkie A, Dubois JJ, Stanek LW, Johns D, Owens EO
ORISE, US EPA-ORD, US CDC-NIOSH

P.140 Public risk perception towards urban air pollution
Zhu KJ, Xu JH
Peking University

P.141 Analysis of U.S. soil lead (Pb) studies from 1970-2012
Wilkie A, Datko-Williams L, Richmond-Bryant J
ORISE, US EPA

P.142 Model validation in disaster relief partner selection and maintenance
Coles JB, Zhuang J
University at Buffalo

P.143 A probabilistic model of U.S. intra-day tap water exposure and its application in PBPK modeling
Schlosser PM, Isaacs K, Sasso AF, Gift JS
US Environmental Protection Agency

P.144 A tool to facilitate the incorporation of metagenomic data into environmental microbial decision-making and risk analysis
*Smith MN, Port JA, Cullen AC, Wallace JC, Faustman EM**
University of Washington

P.145 Decision aiding for extreme event evacuation
Chen NC, Yates JY
Texas A&M University

P.146 Sensitivity of regulatory ozone risk assessment to improved exposure and response models
Ollison W, Capel J, Johnson T
American Petroleum Institute, Consultant, Durham, NC, TRJ Environmental, Inc.

P.147 Evaluating long term inactivation of bacillus spores on common surfaces
*Enger KS, Murali B, Birdsell D, Gurian P, Wagner DM, Mitchell J**
Michigan State University

P.148 Robust approval process in the face of strategic adversaries and normal applicants
Zhuang J, Wang X, Song C, Xu J*
University at Buffalo, SUNY

P.149 Modeling and validating multi-period, multi-type, and multi-target attacker-defender games
Zhang J, Zhuang J
University at Buffalo, SUNY

P.150 Incentives in government provision of emergency preparedness and disaster relief
Guan P, Shan X, He F, Zhuang J
University at Buffalo, SUNY

P.151 Modeling attacker-defender games with risk preferences
Zhuang J, Fu J, Jose VRR*
University at Buffalo, SUNY

P.152 First conference on validating models of adversary behavior
*Zhuang J, Bier V, Zhang J**
University at Buffalo, SUNY, University of Wisconsin-Madison

P.153 Simulating non-dietary ingestion of listeria monocytogenes from residential surfaces
Canales RA, Sinclair RG, Soto-Beltran M, Reynolds K
The University of Arizona

P.154 Comparing bioactivity profiles of diverse nanomaterials based on high-throughput screening (HTS) in ToxCast™
Wang A, Filer D, Shah I, Kleinstreuer N, Berg E, Mosher S, Rotroff D, Marinakos S, El-Badawy A, Houck K
BioSeek Inc., North Carolina State University, Duke University

P.155 Ammonia removal from waste water from cattle and livestock and its reuse
Cabrera VB, De Las Pozas C
Universidad San Sebastian

P.156 Mutagenic mode of action inconsistent with tumor response in >40,000 trout exposed to the potent mutagen dibenzo[a,l]pyrene, contrary to Somatic mutation cancer theory
Bogen K
Eponent

Poster Platform - Shown During Session Time Listed

M3-A.7 Analyzing and managing risks in research labs: how it is done
Pluess DN, Groso A, Meyer T
Swiss Federal Institute of Technology Lausanne

T1-A.1 Findings words that work: assessing media coverage of water issues across Iowa
Miles S, Dalrymple K, Madsen P, Krajewski J
University of Iowa

T1-A.5 Nuclear media discourse post-Fukushima: the state of media coverage pertaining to nuclear energy before and after the Fukushima 2011 nuclear incident
Bell MZ, Yang ZJ
State University of New York at Buffalo

T1-A.6 Controversy in energy technology innovation: contrasting community perspectives of the alleged leak at the Weyburn carbon capture and storage demonstration project
Boyd AD
University of Calgary

8:30 AM - 10:00 AM

Key Ballroom #1

T1-A Poster Platform: Traditional and Social Media Effects

Chair: Nicole Kain

T1-A.1 Findings words that work: assessing media coverage of water issues across Iowa *(also presented during Poster Session)*
Miles S, Dalrymple K, Madsen P, Krajewski J
University of Iowa

T1-A.3 Social media and food crisis communication
Cuite CL, Hallman WK
Rutgers, The State University

T1-A.4 To fortify or not, a structural analysis of the public advisory policy on folic acid in France
Herrera DA
Toulouse School of Economics

T1-A.5 Nuclear media discourse post-Fukushima: the state of media coverage pertaining to nuclear energy before and after the Fukushima 2011 nuclear incident *(also presented during Poster Session)*
Bell MZ, Yang ZJ
State University of New York at Buffalo

T1-A.6 Controversy in energy technology innovation: contrasting community perspectives of the alleged leak at the Weyburn carbon capture and storage demonstration project *(also presented during Poster Session)*
Boyd AD
University of Calgary

T1-A.7 What has Google reported about nanotechnology risks?
Friedman SM, Egolf BP
Lehigh University

T1-A.8 Getting information to underserved communities using twitter: lessons from Hurricane Sandy
Lachlan KA, Spence PR, Lin X
University of Massachusetts Boston, University of Kentucky

8:30 AM - 10:00 AM

Key Ballroom #2

T1-B EPA'S IRIS: It's A New Program, Part I

Co-Chairs: Kenneth Olden, Richard Becker

8:30 AM **T1-B.1**
Advancing human health risk assessment at the United States Environmental Protection Agency
Olden K, Vandenberg J, Kadry A, Deener K
US Government

8:50 AM **T1-B.2**
Enhancing IRIS: progress to date and future actions
Cogliano V
US Government

9:10 AM **T1-B.3**
IRIS improvements: getting the balance right in scientific quality, timeliness, stakeholder engagement and peer review
Denison R
Environmental Defense Fund

9:30 AM **T1-B.4**
IRIS improvements: meeting the needs of California
Marty MA, Zeise L, Salmon AG
Cal/EPA, Office of Environmental Health Hazard Assessment

8:30 AM - 9:30 AM

Key Ballroom #3

T1-C Managing Disasters I

Chair: Michael Greenberg

8:30 AM **T1-C.3**
The clients of the National Weather Service: does the current use of river forecasts fully exploit their potential to decrease flood risk?
Hoss F
Carnegie Mellon University, Pittsburgh

8:50 AM **T1-C.4**
Predicting individual risk-reducing behaviors before, during and after major hazard events
Greenberg MR
Rutgers University

8:30 AM - 10:00 AM

Key Ballroom #4

T1-D Zoonotic Diseases: Risk & Characterization of Human Illness

Chair: Sarah Taft

8:30 AM **T1-D.1**
Use of an administrative database to characterize babesiosis occurrence in the United States, 2006-2008
Walderhaug MO, Menis M, Anderson SA
US FDA CBER

8:50 AM **T1-D.2**
Modelling the species jump: spatially ranking influenza A virus ability to cross species barrier and infect humans
Hill AA, Kosmider RD, Dewe T, Kelly L, De Nardi M, Havelaar A, Von Dobschuetz S, Stevens K, Staerk K
Animal Health and Veterinary Laboratories Agency, Royal Veterinary College, Istituto Zooprofilattico Sperimentale delle Venezie

9:10 AM **T1-D.3**
Zoonotic diseases from companion animals: risk of salmonellosis associated with pet food
Lambertini E, Buchanan RL, Narrod C, Pradhan AK
University of Maryland, Joint Institute for Food Safety and Applied Nutrition

9:30 AM **T1-D.4**
Modelling the risks of introduction of ticks infected with Crimean-Congo haemorrhagic fever virus into GB
England M, Brouwer A, Gale P
AHVLA

8:30 AM - 10:00 AM

Key Ballroom #5

T1-E Modeling Toxicants in the Environment

Chair: Jeff Gift

8:30 AM **T1-E.1**
The importance of within dose-group variance in BMD analyses for continuous response data
Shao K, Gift JS
NCEA, USEPA

8:50 AM **T1-E.2**
Toxicity review of technical grade dinitrotoluene and identification of its critical effects
Yan Z, Zhao Q
ORISE

9:10 AM **T1-E.3**
Predicting long-term benchmark dose from short-term studies in national toxicology program toxicity tests
Wang B, Gray GM
George Washington University

9:30 AM **T1-E.4**
A Bayesian semi-parametric dose response estimation in radiation risk assessment
Furukawa K
Radiation Effects Research Foundation

8:30 AM - 10:00 AM

Key Ballroom #6

T1-F Symposium: Coping with Emerging Threats I: New Approaches

Chair: Marion Dreyer

8:30 AM **T1-F.1**
Emerging risks: concepts and approaches
Renn O
University of Stuttgart

8:50 AM **T1-F.2**
Aligning approaches to management of emerging risks – the new European CEN CWA pre-standard
Jovanovic AS
ZIRIUS, University of Stuttgart & EUVRi, Stuttgart, Germany

9:10 AM **T1-F.3**
Knowledge transfer of simulation-based knowledge from science to policy makers
Scheer D
University Stuttgart

9:30 AM **T1-F.4**
Emerging health risks: early participation in hospital restructuring conflicts
Wachinger G, Renn O, Wuthe J, Wiehe F
University of Stuttgart, ZIRIUS

8:30 AM - 10:10 AM
Peale A&B
T1-G Symposium: Social Aspects of Climate Change Governance
Chair: Pia-Johanna Schweizer

8:30 AM **T1-G.1**
Social learning for climate change governance
Dietz T, Henry AD
Michigan State University

8:50 AM **T1-G.2**
Social trust and fracking
Kasperson R
Clark University

9:10 AM **T1-G.3**
Resilience polices and applications to climate change
Linkov I, Eisenberg DA, Bates ME
US Army Engineer Research and Development Center, MS, Contractor to the US Army Research and Development Center

9:30 AM **T1-G.4**
The politics of climate science and policy
McCright AM
Michigan State University

9:50 AM **T1-G.5**
Requirements for climate change governance
Schweizer PJ
University of Stuttgart

8:30 AM - 10:00 AM
Johnson A
T1-H Advances in Risk Modeling for Security and Defense
Chair: John Lathrop

8:30 AM **T1-H.1**
Prioritizing homeland security using a deliberative method for ranking risks
Lundberg RP, Willis HH
Pardee RAND Graduate School

8:50 AM **T1-H.2**
Frequency-severity relationships for human-caused extreme events
Chatterjee S, Salazar D, Hora S
CREATE, University of Southern California

9:10 AM **T1-H.3**
Making risk-informed decisions using the next generation algorithms for cyber-security and Cyber-Physical Systems (CPS) risk assessment
Panjwani S
THANE Inc

9:30 AM **T1-H.4**
Applying concepts of quality of position to terrorism risk management
Lathrop JF
Innovative Decisions, Inc.

8:30 AM - 10:00 AM
Latrobe
T1-I Networked Infrastructure with Applications to Transportation and Energy
Chair: Rapik Saat

8:30 AM **T1-I.1**
Network approaches to assess critical infrastructure risks
Zimmerman R
New York University

8:50 AM **T1-I.2**
Managing the risk of crude oil transportation by rail
Liu X, Serrano JA, Saat MR, Christopher CPL
University of Illinois at Urbana-Champaign

9:10 AM **T1-I.3**
Submarine Power Cables (SPCs): the laying procedure, the fleet and reliability analysis of Medium Voltage Network
Stavrou DI, Ventikos NP
School of Naval Architecture and Marine Engineer in Technical University of Athens

8:30 AM - 10:00 AM
Ruth
T1-J Symposium: New and Improved Regulatory Impact Analysis
Chair: Chris Carrigan

8:30 AM **T1-J.1**
What's wrong with the back of the envelope? A call for simple (and timely) cost-benefit analysis
*Carrigan C, Shapiro S**
George Washington University, Rutgers University

8:50 AM **T1-J.2**
Good practices, bad practices, benefits and costs
Nardinelli C
Food and Drug Administration

9:10 AM **T1-J.3**
A retrospective cost-benefit analysis of the bar code rule
Lew N, Nardinelli C, Schick A, Ashley E
US Food and Drug Administration, Office of Management and Budget

9:30 AM **T1-J.4**
Integrating risk and economic performance measures for cybersecurity
Farrow S
UMBC

8:30 AM - 10:00 AM
Johnson B
T1-K Tools for Assessing & Managing Risk
Chair: Shaye Friesen

8:30 AM **T1-K.1**
EPA's framework for human health risk assessment to inform decision making
Fitzpatrick JW, Schoeny R, Gallagher K, Ohanian EV
US Environmental Protection Agency

8:50 AM **T1-K.2**
Development of a practical approach to rank the relative health and environmental risks of industrial facilities in Abu Dhabi
Mokhtari A, Beaulieu SM, Lloyd JM, Akl S, Money ES, Turner MB, Al Hajeri K, Al Mehairi A, Al Qudah A, Gelle K
RTI International, Environment Agency-Abu Dhabi

9:10 AM **T1-K.3**
Using a Relative Health Indicator (RHI) metric to estimate health risk reductions in drinking water
Alfredo KA, Roberson JA, Ghosh A, Seidel C
American Water Works Association; Jacobs Engineering

9:30 AM **T1-K.4**
Release of OSRTI's online risk calculator
Galloway L, Dolislager F, Stewart D, Tucker K
University of Tennessee, Knoxville

Join us at the
SRA Awards Luncheon and Business Meeting
Noon - 1:30 pm, Key Ballroom 7-12
Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday's Poster Reception.
(Luncheon is included in Registration Fee)

10:30 AM- Noon
Key Ballroom #1

T2-A Symposium: Cross-Disciplinary Methods for Research Synthesis, Part II
Chair: Lisa Robinson

10:30 AM **T2-A.1**
Strengths and limitations of meta-analytic approaches for developing multi-stressor dose-response functions
Levy JI, Fabian MP, Peters JL
Boston University School of Public Health

10:50 AM **T2-A.2**
Characterizing the long-term PM2.5 concentration response function: a comparison of estimates from expert judgment, meta-analysis, and integrated research estimates
*Fann NL, Walker KW, Gilmore EA**
US Environmental Protection Agency

11:10 AM **T2-A.3**
Rethinking meta-analysis: applications for air pollution data and beyond
Goodman JE, Sax SN, Thakali S, Beyer L
Gradient

11:30 AM **T2-A.4**
Energy technology expert elicitations: their use in models and what can we learn from workshops and metaanalysis
Anadon LD, Bosetti V, Chan G, Nemet GF, Verdolini E
Harvard University

10:30 AM- Noon
Key Ballroom #2

T2-B EPA'S IRIS: It's A New Program, Part II
Co-Chairs: Kenneth Olden, Richard Becker

10:30 AM **T2-B.1**
IRIS improvements: meeting the needs of Texas
Honeycutt ME, Haney JT
State Government

10:50 AM **T2-B.2**
Getting the science right on mode of action: an essential element for IRIS improvement
Wise K, Beck N, Fischer D, Pottenger LH, Beatty P, Cruzan G, Becker RA
American Chemistry Council, The Dow Chemical Company, American Petroleum Institute, ToxWorks

11:10 AM **T2-B.3**
The power of scientific peer review and IRIS
*Philbert MA, Cory-Slechta DA**
University of Michigan School of Public Health, University of Rochester School of Medicine

11:30 AM **T2-B.4**
Progress made in improving IRIS: a panel discussion
Becker RA, Olden K
American Chemistry Council, US Environmental Protection Agency

10:30 AM- Noon
Key Ballroom #3

T2-C Managing Disasters II
Chair: Myriam Merad

10:30 AM **T2-C.1**
Modeling dynamic behavior of complex systems operating crew during accidents
Azarkhil M, Mosleh A
Reliability Engineering Program, University of Maryland at College Park

10:50 AM **T2-C.3**
The federal all hazards risk assessment: integrating strategic risk into emergency management planning – a Canadian perspective
*Cheung C, Friesen S**
Government of Canada

11:10 AM **T2-C.4**
Modeling public-private partnerships in disaster management—a sequential game with prospect utilities
Guan PQ, Zhuang J
University at Buffalo-SUNY

10:30 AM- Noon
Key Ballroom #4

T2-D Microbial Pathogens in the Environment: Assessment of Public Health Risks
Chair: David Oryang

10:30 AM **T2-D.1**
Estimating risk of intestinal nematode infection from exposure to ambient waters using quantitative microbial risk assessment (QMRA) in Salta, Argentina
Kundu A
University of California, Davis

10:50 AM **T2-D.2**
Risk of cryptosporidium infection to recreational swimmers in swimming pools
Suppes L, Canales R, Gerba C, Reynolds K
The University of Wisconsin - Eau Claire and The University of Arizona

11:10 AM **T2-D.3**
Assessment of relative potential for Legionella species inhalation exposure from common water uses
Taft SC, Hines SA, Chappie DJ, Janke RJ, Lindquist HA, Ernst HS
U.S. Environmental Protection Agency; Battelle Memorial Institute

11:30 AM **T2-D.4**
Monitoring and mapping conditions associated with enteric pathogens using rainfall and satellite vegetation index data
Anyamba A, Small J, Oryang D, Fanaselle W
NASA Goddard Space Flight Center

10:30 AM- Noon
Key Ballroom #5

T2-E Big Data Application: Patterns & Effects
Chair: Seth Guikema

10:30 AM **T2-E.1**
Enriching environmental risk based decision support models with large scale, high resolution population data
Stewart RN, Bright EA, Rose AN, McGinn CW, Bhaduri BL
Oak Ridge National Laboratory

10:50 AM **T2-E.2**
Predicting the effects of urban design on public health: a case study in Raleigh, North Carolina
Dennerlein T, Rodriguez D, MacDonald-Gibson J
University of North Carolina at Chapel Hill

11:10 AM **T2-E.3**
Measuring health impacts from breaks in water distribution systems using internet search data
Shortridge JE, Guikema SD
The Johns Hopkins University

11:30 AM **T2-E.4**
Geographic and demographic patterns of health risks associated with chemical and non-chemical stressor exposures in a low-income community
Levy JI, Fabian MP, Peters JL, Korrick SA
Boston University School of Public Health; Channing Division of Network Medicine, Brigham and Women's Hospital

10:30 AM- Noon

Key Ballroom #6

T2-F Symposium: Coping with Emerging Threats II: New Approaches

Chair: Dick Scheer

10:30 AM **T2-F.1**
Public information responses after terrorist events
Sellke P, Amlot R, Rogers B, Pearce J, Rubin J, Mowbray F
Dialogik non-profit institute

10:50 AM **T2-F.2**
Social unrests as systemic risks
*Renn O, Jovanovic A, Schroeter R**
University of Stuttgart

11:10 AM **T2-F.3**
Decision-making and participation with a special focus on energy policy and climate change: how to integrate the knowledge of citizens and associations
Schetula VS
Dialogik Non Profit Institute for Communication and Cooperation Research

11:30 AM **T2-F.4**
Pharmaceutical residues in the water cycle: a case for communicating 'risk' to the public?
Dreyer M, Kuhn R
Dialogik non-profit institute for communication and cooperation research

10:30 AM- Noon

Peale A&B

T2-G Temporal Issues in Risk Communication

Chair: John Besley

10:30 AM **T2-G.1**
The effects of psychological distance on risk perception, behavioral intention, and mitigation behavior
Zwickle A, Wilson R
The Ohio State University

10:50 AM **T2-G.2**
Climate change and related risks: personal or impersonal?
Kirby-Straker R, Turner M
University of Maryland, College Park, George Washington University

11:10 AM **T2-G.3**
Perils and promises of one health risk messages about lyme disease
Roh S, McComas K, Decker D, Rickard L*
Cornell University

11:30 AM **T2-G.4**
Where there's a will: can highlighting future youth-targeted marketing build support for health policy initiatives?
Roh S, Schuldt JP
Cornell University

10:30 AM- Noon

Johnson A

T2-H Symposium: Risk and Strategic Decision Making in the Pentagon

Chair: Jay Rouse

10:30 AM **T2-H.1**
US Air Force risk assessment framework
Boerman DA, Gallagher M
Headquarters, US Air Force

10:50 AM **T2-H.2**
Defining risk to the defense strategy
DuMont MK
Office of the Secretary of Defense

11:10 AM **T2-H.3**
The Chairman of the Joint Chiefs of Staff: risk assessment system
Rouse JF
Arete Associates, Joint Staff

11:30 AM **T2-H.4**
Identification of Hidden Risks and Associated Costs using Integrated Life Cycle Impact and Cost Assessment (ILCICA)
Risz Y, Reich-Weiser C, Cammarata C
Enviance Inc.

10:30 AM- Noon

Latrobe

T2-I Multi-Criteria Decision Making for Infrastructure Management and Investment

Chair: Shital Thekdi

10:30 AM **T2-I.1**
Addressing uncertainties of avoided crash risk, travel time savings, and lifecycle costs in transportation access management
Xu J, Lambert JH
University of Virginia

10:50 AM **T2-I.2**
Applying multi-criteria decision analysis and life cycle approaches to direct engineering research regarding the selection of CZTS back-contacts for thin film solar photovoltaics
Scott RP, Cullen AC
University of Washington

11:10 AM **T2-I.3**
A fuzzy-VIKOR model for risk assessment of environmental management system implementation in construction projects
Assadian MS, Sadeghi F
Isfahan Regional Center for Business Incubators & Science Parks Development

11:30 AM **T2-I.4**
Risk-based investment for prison infrastructure systems
Thekdi SA
University of Richmond

10:30 AM- Noon

Ruth

T2-J Updates in Ecological Risk Assessment Models

Chair: Katherine von Stackelberg

10:30 AM **T2-J.1**
Review of marine mammal inhalation toxicity for petroleum-related compounds: potential applications to risk assessment
Rosenstein AB, Mori CS, Collier TK, Ruder E
Risk Assessment Consultant, Industrial Economics Incorporated (IEc)

10:50 AM **T2-J.2**
Analysis of the exposure-effects relationships from concentration-response curves for ecological risk assessment
Landis WG, Johns A
Western Washington University

11:10 AM **T2-J.3**
Probabilistic methods to address ecological risk of secondary ingestion exposure to chemicals
Kashuba R, Fairbrother A, Kane Driscoll S, Tinsworth R
Exponent

11:30 AM **T2-J.4**
Updates to ecological preliminary remediation goals for soils at the Los Alamos National Laboratory
Wald-Hopkins P, Ryti RT
Neptune and Company, Inc.

10:30 AM- Noon

Johnson B

T2-K Assessing Risks & Chemical Regulation

Chair: Ragnar Lofstedt

10:30 AM **T2-K.1**
The substitution principle in chemical regulation: a constructive critique
Lofstedt R
Kings College London

10:50 AM **T2-K.2**
Distinguishing between risks and hazards: a case study of Bisphenol A
Lemay JC, Prueitt RL, Hixon ML, Goodman JE
Gradient

11:10 AM **T2-K.3**
Comparing science policy choices in chemical risk assessments across organizations
Holman E, Francis R, Gray G
US Environmental Protection Agency, George Washington University

11:30 AM **T2-K.4**
How many substances are illegally listed in the biennial report on carcinogens?
Belzer RB
Regulatory Checkbook

1:30 PM - 3:00 PM
Key Ballroom #1

T3-A Infrastructure Safety
Chair: Royce Francis

1:30 PM **T3-A.1**
Risk-informed regulatory compliance enforcement model for technical infrastructure in public domain
Veeramany A, Mangalam S
Technical Standards and Safety Authority

1:50 PM **T3-A.2**
A qualitative safety risk assessment method to construction industry incorporating uncertainties by the use of fuzzy sets
Pinto A
Safe@Plant

2:10 PM **T3-A.3**
Development and sensitivity analysis of an indirect risk model for the port of Rotterdam
Koks EE, Bockarjova M, De Moel H, Aerts JCJH
VU University Amsterdam

2:30 PM **T3-A.4**
Risk management in international construction joint ventures: lessons learned from a case study in Iran
Sadeghi F, Assadian MS
Pardazesh Samaneh Farboud Consulting Co.

1:30 PM - 3:00 PM
Key Ballroom #2

T3-B Symposium: Proposed Methods for U.S. EPA's CRA Guidelines, Part I
Co-Chairs: Julie Fitzpatrick, Wendy O'Brien

1:30 PM **T3-B.1**
Overview of the Environmental Protection Agency (EPA) Cumulative Risk Assessment (CRA) guidelines effort and its scientific challenges
Martin LR, Teuschler LK, O'Brien W
US Environmental Protection Agency

1:50 PM **T3-B.2**
Stakeholder involvement and risk communication in CRA planning, scoping and problem formulation
MacDonell M, Garrahan K, Hertzberg R
Argonne National Laboratory, US EPA, Emory University

2:10 PM **T3-B.3**
Using directed acyclic graphs in cumulative risk assessment (CRA)
Brewer LE, Teushler L, Rice G, Wright JM, Neas L
ORISE Fellow in the Research Participation Program at the US EPA, Office of the Science Advisor, US EPA, National Center for Environmental Assessment, US EPA, National Health and Environmental Effects Research Laboratory

2:30 PM **T3-B.4**
Developing effect-based conceptual models for Cumulative Risk Assessment (CRA) that can accommodate diverse stressors
Menzie C, Kashuba R
Exponent

1:30 PM - 3:00 PM
Key Ballroom #3

T3-C Authors Meet Critics: The Risk Society Revisited
The Risk Society: Theoretical Approaches, New Insights, Future Applications
Aaron McCright, Ortwin Renn

Commentaries by: Thomas Dietz, Robert Goble, Ragnar Löfstedt, Roger Kasperson

Risk is a part of life. How we handle uncertainty and deal with potential threats influence decision making throughout our lives. In The Risk Society Revisited, Eugene A. Rosa, Ortwin Renn, and Aaron M. McCright offer the first book to present an integrated theory of risk and governance. The session "Authors Meet Critics" is an opportunity to start a dialogue between the authors (McCright and Renn) and risk scholars who have been asked to provide commentaries to the new book. It is also a tribute to Eugene Rosa who was diagnosed with cancer during the production of the book and unfortunately did not live long enough to see the published version. The book is dedicated to him.
The authors examine our sociological understanding of risk and how we reconcile modern human conditions with our handling of risk in our quest for improved quality of life. They build a new framework for understanding risk—one that provides an innovative connection between social theory and the governance of technological and environmental risks, and the sociopolitical challenges they pose for a sustainable future. Showing how our consciousness affects risk in the decisions we make—as individuals and as members of a democratic society—The Risk Society Revisited makes an important contribution to the literature of risk research.

1:30 PM - 3:00 PM
Key Ballroom #4

T3-D Understanding & Mitigating Risk of Illness: Pathogens in Human & Pet Food
Chair: Abani Pradhan

1:30 PM **T3-D.1**
Surveillance of salmonella prevalence in pet food, pet treats and pet nutritional supplements by the United States Food and Drug Administration in 2002 – 2012
Li X, Lovell RA, Proescholdt TA, Benz SA, McChesney DG
Division of Animal Feeds, Office of Surveillance and Compliance, Center for Veterinary Medicine, Food and Drug Administration

1:50 PM **T3-D.2**
FDA risk profile on pathogens and filth in spices
Van Doren JM, Kleinmeier D, Ziobro GC, Parish M, Hammack TS, Gill V, Nsofor O, Westerman A
US Food and Drug Administration

2:10 PM **T3-D.3**
Risk assessment model for Shigatoxin-producing Escherichia coli and Salmonella in ground beef in France: efficiency of different strategies of intervention and sampling beef trim
Moez S
ANSES, French Agency for Food, Environmental and Occupational Health & Safety

2:30 PM **T3-D.4**
Reducing the potential for norovirus foodborne illness through surface disinfection
Fanaselle WL, Hoelzer K
FDA, CFSAN

1:30 PM - 3:00 PM
Key Ballroom #5

T3-E Symposium: Risk 21 Tiered Approach for Exposure Estimation for Human Risk Assessments
Chair: Jennifer Tanir

1:30 PM **T3-E.1**
Optimizing a tiered exposure framework to aid risk assessment decision-making
Gaborek BJ, Bellin CA, Dellarco M, Egeghy P, Heard N, Jensen E, Lander DR, Tanir JY, Zaleski RT, Sunger N*
DuPont

1:50 PM **T3-E.2**
Exposure bands for tiered exposure assessment decision-making
Zaleski R, Gaborek BJ, Qian H, Bellin CA, Dellarco M, Egeghy P, Heard N, Jolliet O, Lander DR, Tanir JY
ExxonMobil Biomedical Sciences, Inc.

2:10 PM **T3-E.3**
Product stewardship for a new product: RISK 21 tiered exposure framework in practice
Lander DR, Heard NE, Dellarco M
DuPont, Syngenta, NIH

2:30 PM **T3-E.4**
Water chemicals case study using the RISK21 tiered exposure framework
Jensen E, Bellin C, Embry M, Gaborek B, Lander D, Tanir JY, Wolf D, Zaleski R*
Dow Corning Corporation

1:30 PM - 3:00 PM

Key Ballroom #6

T3-F Symposium: Modernizing the Tools & Approaches to Improve Data Availability & Transparency

Chair: Nancy Beck

1:30 PM **T3-F.1**

The importance of access to underlying data

Mason AM, Risotto S, Wise K

American Chemistry Council

1:50 PM **T3-F.2**

Existing tools for accessing federal data

Marks PD

Law Firm

2:10 PM **T3-F.3**

The NIH BD2K initiative: enabling biomedical research & raising the prominence of data

Huerta MF

National Library of Medicine, National Institutes of Health

2:30 PM **T3-F.4**

Updating on-line resources: new tools and approaches being used by NIH to make information more accessible

Hakkinen PJ

National Library of Medicine, National Institutes of Health

1:30 PM - 3:00 PM

Peale A&B

T3-G Information Processing in Risk Communication: A Roundtable Discussion

Co-Chairs: Robyn Wilson, Joe Arvai

Roundtable Panelists include:

Paul Slovic, Decision Research

Joe Arvai, University of Calgary

Katherine McComas, Cornell University

Michael Siegrist, ETH Zurich

Janet Yang, State University of New York at Buffalo

Nathan Dieckmann, Oregon Health and Science University

1:30 PM - 3:00 PM

Johnson A

T3-H Symposium: Total Risk Associated with Chemicals and Materials in the Department of Defense

Chair: Andrew Rak

1:30 PM **T3-H.1**

There's more than one type of risk for chemicals and materials in DoD

Yaroschak PJ

Office of the Deputy Under Secretary of Defense (I&E)

1:50 PM **T3-H.2**

Identifying and mitigating worker health risks from lead exposure in the Department of Defense

Scanlon KA, Yaroschak PJ

Consultant

2:10 PM **T3-H.3**

Case study on new chemicals and materials: incorporating environmental, health and safety information into the defense acquisition process

Underwood PM, Rak A

Office of the Deputy Under Secretary of Defense (I&E), Noblis Inc.

2:30 PM **T3-H.4**

Health risk assessment/risk management case study: managing project uncertainty presented by the IRIS trichloroethylene reference concentration published in IRIS

Meyer AK, Groher DM, Cain LG

Environmental and Munitions Center of Expertise, Army Corps of Engineers, New England District, Army Corps of Engineers

1:30 PM - 3:00 PM

Latrobe

T3-I Simulation Techniques and Applications to Explore Uncertainty and Risk

Chair: Daniel Salazar

1:30 PM **T3-I.1**

Long-term hurricane impact on US power systems

Staid A, Guikema SD, Nateghi R, Quiring SM, Gao MZ, Yang Z

Johns Hopkins University

1:50 PM **T3-I.2**

Simulation approaches for assessing the impacts on equity in a region due to earthquakes

Miller MK, Baker JW

Stanford University

2:10 PM **T3-I.3**

Information processing modes and risk judgment quality

Lee E, Dunwoody S

University of Pennsylvania, University of Wisconsin, Madison

2:30 PM **T3-I.4**

Deploying simulation to compare among different risk reduction strategies for supply chains

MacKenzie CA

Naval Postgraduate School

1:30 PM - 3:00 PM

Ruth

T3-J Symposium: Does Regulation Kill Jobs? Authors of a New Book Discuss the Evidence and Policy Responses

Chair: Adam Finkel

1:30 PM **T3-J.1**

Why politicians think regulation kills jobs...when economists don't

*Coglianese C, Carrigan C**

University of Pennsylvania

1:50 PM **T3-J.2**

Lessons from risk assessment controversies for the "job-killing regulations" debate

Finkel AM

University of Pennsylvania Law School

2:10 PM **T3-J.3**

Employment impacts in benefit-cost analyses

McGartland A, Ferris A

Environmental Protection Agency

2:30 PM **T3-J.4**

Employment and human welfare: do jobs count in benefit-cost analysis?

Mannix BF

George Washington University

3:30 PM - 5:00 PM

Key Ballroom #1

T4-A PRA & Statistical Modeling Applications

Chair: Adam Finkel

3:30 PM **T4-A.1**

Quantitative risk analysis of severe accidents in fossil energy chains using bayesian hierarchical models

Spada M, Burgherr P

Laboratory for Energy Systems Analysis, Paul Scherrer Institute, Switzerland

3:50 PM **T4-A.2**

Stochastic input-output modeling of influenza pandemic effects on interdependent workforce sectors

El Haimar AE, Santos JS

The George Washington University

4:10 PM **T4-A.4**

A Probabilistic Risk Analysis (PRA) framework for modeling risk in global drug supply chain

Kazemi RK, Rahaman FR, Urban JU, Carter W

USFDA

4:30 PM **T4-A.5**

Using statistical profiling to improve OSHA's capability to locate workplaces posing grave risks

Finkel AM, Berk RA

University of Pennsylvania Law School

3:30 PM - 5:30 PM

Key Ballroom #2

T4-B Symposium: Proposed Methods for U.S. EPA's CRA Guidelines, Part II

Co-Chairs: Julie Fitzpatrick, Wendy O'Brien

3:30 PM **T4-B.1**

Using secondary data to evaluate diverse groups of chemical and non-chemical stressors in cumulative risk assessment

Evans AM, Rice GE, Teuschler LK, Wright JM

Oak Ridge Institute of Science and Education

3:50 PM **T4-B.2**

Grouping of diverse stressors for cumulative risk analysis (CRA) by media, time and toxicity

Rice GE, Teuschler LK

National Center for Environmental Assessment/ORD/US EPA

4:10 PM **T4-B.3**

Adapting chemical mixture risk assessment methods to assess chemical and non-chemical stressor combinations

Teuschler LK, Rice GE, Mumtaz M, Hertzberg RC

US Environmental Protection Agency

4:30 PM **T4-B.4**

Using existing study data or methodologies from epidemiology and toxicology to evaluate diverse stressors

Rhomberg LR

Gradient

4:50 PM **T4-B.5**

Special considerations for risk characterization in a cumulative risk assessment

Hertzberg RC, Burkhardt EA, MacDonell MM

Emory University

5:10 PM **Discussion**

3:30 PM - 5:00 PM

Key Ballroom #3

T4-C Public Health Risk & Sources

Chair: Jason Sacks

3:30 PM **T4-C.2**

Identifying populations at-risk of air pollution-induced health effects through the use of a novel classification scheme

Sacks JD, Vinikoor-Imler LC, Ross M

US Environmental Protection Agency

3:50 PM **T4-C.3**

Flexible framework for the study of dispersion scenarios by accidental events in the transportation of hazardous material

Suarez M, Muñoz F

Universidad de los Andes

4:10 PM **T4-C.4**

Blood transfusion public health risk to explore limitations of the common risk matrix

Vatanpour S, Hrudey SE, Dinu I

University of Alberta

4:30 pm **T4-C.5**

Recent findings from human health and ecological risk assessments of waste to energy technologies

*Foster SA, Chrostowski PC**

CPF Associates, Inc.

3:30 PM - 5:10 PM

Key Ballroom #4

T4-D Informing Risk Assessments of Engineered Nanomaterials: Frameworks and Analysis

Chair: Ron White

3:30 PM **T4-D.1**

Nanotechnology risk screening using a Structured Decision Making (SDM) approach

Beaudrie CB, Kandlikar M, Long G, Gregory R, Wilson T, Satterfield T

Compass Resource Management Ltd.

3:50 PM **T4-D.2**

Complementary use of life cycle assessment and risk assessment for engineered nanomaterials: lessons learned from chemicals?

Grieger KD, Laurent A, Miseljic M, Christensen F, Baun A, Olsen SI

RTI International, Technical University of Denmark (DTU), COWI A/S

4:10 PM **T4-D.3**

Prioritizing hazard research for three nanomaterials through value of information analysis

Bates ME, Keisler JM, Wender BA, Zussblatt N, Linkov I

US Army Corps of Engineers

4:30 PM **T4-D.4**

Life cycle risk assessment of nanocellulosic materials

Shatkin JA

Vireo Advisors

4:50 PM **T4-D.5**

Sustainable nanotechnologies (SUN)

Hristozov DH, Wohlleben W, Steinfeldt M, Nowack B, Scott-Fordsmand J, Jensen KA, Stone V, Costa A, Linkov I, Marcomini A

University of Ca'Foscari of Venice, Italy

3:30 PM - 5:10 PM

Key Ballroom #5

T4-E Nano, Synthetic Biology, Animal Feed

Chair: Mary Bartholomew

3:30 PM **T4-E.1**

An extensible multi-compartment model for nanoparticle risk assessment

Dale A, Barton L, Therezien M, Lowry G, Casman E

Carnegie Mellon University, Duke University

3:50 PM **T4-E.2**

The interaction of CeO2 nanoparticles with rice: impacts on productivity and nutritional value

Rico CM, Barrios AC, Hong J, Morales MI, McCreary R, Lee WY, Peralta-Videa JR, Gardea-Torresdey JL

The University of Texas at El Paso, University of California Center for Environmental Implications of Nanotechnology

4:10 PM **T4-E.3**

Synthetic biology: prospective products and applications for food/feed and requirements for regulation

Flari V, Kerins G

Food and Environment Research Agency

4:30 PM **T4-E.4**

Risk-ranking model for hazards in animal feed

Okelo PO, Hooberman B, Graber G, Bartholomew MJ, Stewart KN

FDA Center for Veterinary Medicine, FDA Office of Foods and Veterinary Medicine, AFSS Consulting

4:50 PM **T4-E.5**

Ranking contaminants in swine and poultry feed

Bartholomew MJ, Hooberman B, Stewart KN, Okelo PO, Graber G*

FDA Center for Veterinary Medicine, FDA Office of Foods and Veterinary Medicine, AFSS Consulting

3:30 PM - 5:10 PM
Key Ballroom #6
T4-F Regulation, Risk & Transparency in the Pharmaceutical Sector
Chair: Sweta Chakraborty

3:30 PM **T4-F.1**
Regulation, law, and pharmaceutical safety
Chakraborty S
University of Oxford

3:50 PM **T4-F.2**
Managing pharmacogenomic risks through litigation
Marchant GE, Lindor RA
Arizona State University

4:10 PM **T4-F.3**
A risk assessment for an informed decision-making for non-traditional pharmacy compounding
Okwesili P, Mazzuchi T, Sarkani S
GWU, FDA

4:30 PM **T4-F.4**
Fighting influenza: should European regulators stockpile?
Bouder FE, Way D, Lofstedt RE
Maastricht University

4:50 PM **T4-F.5**
Transparency and risk communication in the European pharmaceutical sector
Way DHP, Bouder F
King's College London, Maastricht University

3:30 PM - 5:10 PM
Peale A&B
T4-G Risk Information Seeking & Processing Behavior
Chair: Craig Trumbo

3:30 PM **T4-G.1**
Extending RISP: from message elaboration to support for climate change mitigation policy
Yang ZJ, Rickard LN, Seo M, Harrison T
University at Buffalo, SUNY College of Environmental Science and Forestry, University at Albany

3:50 PM **T4-G.2**
The "I" in climate: the role of individual responsibility in systematic processing of climate change information
Yang ZJ, Rickard L, Seo M, Harrison T*
University at Buffalo, SUNY College of Environmental Science and Forestry, University at Albany

4:10 PM **T4-G.3**
Actively seeking versus taking notice of risk information: the case of food risks
Kuttschreuter M, Hilverda MD, Pieniak Z
Department Psychology of Conflict, Risk and Safety, University of Twente

4:30 PM **T4-G.4**
Ecological risk communication and environmental values: predicting public interest in participating in federal rulemaking concerning pesticide risk
Jenkins F, Rowan KE
George Mason University

4:50 PM **T4-G.5**
Learning from SARS and H1N1: A comparison of survey data from nurses in Alberta, Canada
Kain NA, Jardine CG, Wong J
University of Alberta

3:30 PM - 5:10 PM
Johnson A
T4-H Symposium: Validating Models of Adversary Behavior
Chair: Jun Zhuang

3:30 PM **T4-H.1**
Stackelberg games in security domains: evaluating effectiveness of real-world deployments
Tambe M, Shieh E
University of Southern California

3:50 PM **T4-H.2**
Beyond risk-neutrality in attacker-defender games: expected utility and cumulative prospect theories
Jose VRR, Zhuang J
Georgetown University

4:10 PM **T4-H.3**
Validation of adversary utility assessment by proxy
John RS, Rosoff HR
University of Southern California

4:30 PM **T4-H.4**
Modeling terrorism risk to the air transportation system: an independent assessment of TSA's risk management analysis tool and associated methods
Morral AR, Price CC, Ortiz DS, Wilson B, LaTourrette T, Mobley BW, McKay S, Willis HH
RAND Corporation

4:50 PM **T4-H.5**
Modeling and validating multi-period, multi-type, and multi-target attacker-defender games
Zhang J, Zhuang J
SUNY at Buffalo

3:30 PM - 5:00 PM
Latrobe
T4-I Risks of Nuclear Power Generation
Chair: Cameron MacKenzie

3:30 PM **T4-I.2**
Improving nuclear power plant construction cost learning curves by implementing organizational learning tools for risk identification and risk assessment
Talabi S
Carnegie Mellon Unversity

3:50 PM **T4-I.3**
Drought forecasting and resilience analysis of nuclear power plants infrastructure
Bekera B, Francis RA, Omitaomu O
GWU, ORNL

4:10 PM **T4-I.4**
Operational reliability of power plants and energy shortage risk in Japan after the March 11 earthquake and tsunami
Kajitani Y, Yuyama A
Central Reserach Institute of Electric Power Industry

4:30 PM **T4-I.5**
Cost and effectiveness of decontamination options in special decontamination areas in Fukushima
Naito W, Yasutaka T
National Institute of Advanced Industrial Science and Technology

3:30 PM - 5:10 PM
Ruth
T4-J Symposium: Tightening the Connection Between Risk Assessment, Decisions and Outcomes
Chair: Elisabeth Gilmore

3:30 PM **T4-J.1**
Risk management to achieve priorities: linking risk interventions to outcomes
Morgan KM, Bertoni MJ
US Food and Drug Administration

3:50 PM **T4-J.2**
Outcome informed departures from a default science policy assumption
Brand K
University of Ottawa

4:10 PM **T4-J.3**
Recent efforts for aligning risk assessment and economic analysis at EPA
Axelrad DA, Chiu W, Dockins C
US EPA

4:30 PM **T4-J.4**
Modeling incentives for the development of new antibacterial drugs
Sertkaya A, Jessup A, Wong H
Eastern Research Group, HHS Assistant Secretary for Planning and Evaluation

4:50 PM **T4-J.5**
(Almost) all gain
Zerbe R, Scott T
University of Washinton

3:30 - 5:00 PM

Johnson B

T4-K Symposium: Risks in Social & Cultural Perspective: In Memory of Gene Rosa

Co-Chairs: Ortwin Renn, Tom Dietz

3:30 pm **T4-K.1**
Design principles for governing risks from emerging technologies
Stern PC
National Research Council

3:50 pm **T4-K.2**
Opportunities and dilemmas in managing risk uncertainty
Kasperson RK
Clark University

4:10 pm **T4-K.3**
Socioeconomic dimensions of geoengineering and carbon sequestration: requirements for sustainable risk governance
Renn O
State University of Stuttgart

4:30 pm **T4-K.5**
Gene Rosa: dedication to a humane societal development
Dietz T
Michigan State University

5:00 PM - 6:00 PM

Key Ballroom #3

T5-C Symposium: Risk Analysis: Past, Present and Future

Chair: Tony Cox

5.00 PM **T5-C.1**
Possible Futures for Risk Analysis
Cox T
Cox Associates and University of Colorado

5.20 PM **T5-C.2**
Creating a field that matters
Anderson EL
Exponent

Be sure to stop by any of the Specialty Group Mixers

6:00 - 7:30 PM

DRSG, EASG, ERASG, MRASG, OHSSG - Tubman A
DARSG, EISG, RDSG, SDSG - Carroll A
EBASG, ENMSG, RCSG, RPLSG - Carroll B

6:00 - 8:00 PM

National Capital Area Chapter (NCAC) - Tubman B

Tuesday Sessions Sponsored by Specialty Groups

T1-A	*RCSG*	*T2-F*	*RPLSG*
T1-B	*DRSG*	*T2-G*	*RCSG*
T1-C	*DASG*	*T2-H*	*SDSG*
T1-D	*MRASG*	*T2-I*	*EISG*
T1-E	*DRSG*	*T2-J*	*ERASG*
T1-F	*RPLSG*	*T2-K*	*RPLSG*
T1-G	*RCSG*	*T3-A*	*DASG*
T1-H	*SDSG*	*T3-D*	*MRASG*
T1-I	*EISG*	*T3-E*	*EASG*
T1-J	*EBASG, Society for Benefit-Cost Analysis*	*T3-I*	*EISG*
		T3-J	*EBASG, Society for Benefit-Cost Analysis*
T1-K	*DASG*		
T2-A	*EBASG*	*T4-A*	*DASG*
T2-B	*DRSG*	*T4-E*	*EASG*
T2-C	*DASG*	*T4-H*	*SDSG*
T2-D	*MRASG*	*T4-I*	*EISG*
T2-E	*EASG*	*T4-J*	*EBASG*

Mark your calendar!

Dates for the 2014 and 2015 Annual Meetings:

7-10 December 2014

Denver, Colorado

6-9 December 2015

Arlington, Virginia

www.SRA.org
SRA Headquarters, 1313 Dolley Madison Boulevard, Suite 402, McLean, Virginia 22101
703.790.1745; FAX: 703.790.2672 SRA@BurkInc.com

10:30 AM- Noon
Key Ballroom #1

W2-A Improving Risk Analysis & Information Quality
Chair: Randall Lutter

10:30 AM **W2-A.1**
Establishing guidelines for more objective risk assessments
Calabrese E, Yazigi D
University of Massachusetts/Mercatus Center

10:50 AM **W2-A.2**
Too many rules, too much risk
Williams RA
Mercatus Center at George Mason University

11:10 AM **W2-A.3**
See no evil, hear no evil: political incentives in agency risk tradeoff analysis
Abdukadirov S
Mercatus Center, George Mason University

11:30 AM **W2-A.4**
Analysis of regulatory effectiveness: the case of mandatory information disclosure
Fraas A, Lutter R
Resources for the Future, Washington D.C.

10:30 AM- Noon
Key Ballroom #2

W2-B Symposium: Evaluating Causality in Epidemiological Studies
Co-Chairs: Carol Burns, Mike Wright

10:30 AM **W2-B.1**
Sources of uncertainty in epidemiological studies and their impact on human health risk assessments
Bateson T
US EPA

10:50 AM **W2-B.2**
Evaluating uncertainty due to exposure assessment in epidemiologic studies used in risk assessment
Luben TJ, Milhan G, Autrup H, Baxter L, Blair A, Kromhout H, Ritter L, Stayner L, Symanski E, Wright JM
US EPA

11:10 AM **W2-B.3**
On the future of epidemiologic methods in context of risk assessment
Burstyn I
Drexel University

11:30 AM **W2-B.4**
Panel discussion on the integration of workshop recommendations to move risk assessment forward
Burns CJ, Wright JM, Pierson J
The Dow Chemical Company

10:30-11:30 AM
Key Ballroom #3

W2-C Emerging Risk Assessment Challenges & Opportunities for the Developing Countries, Part I
Co-Chairs: Abdel Kadry, Mohamed Shereif

10:30 AM **W2-C.2**
Toxicological and public health implications of the use of scrap rubber tires for smoking meat in Africa
Afriyie-Gyawu E, Shankar P, Adu-Oppong A, Hsu J-P
University of Georgia Southern

10:50 AM **W2-C.3**
Analysis and monitoring of criteria air pollutants in selected areas of Riyadh City, Saudi Arabia
Shereif M, Monshi M, Alharbi B
King Saud University

11:10 AM **W2-C.4**
A global collaborative approach to human health risk assessment: the WHO chemical risk assessment network
Hughes K, Vickers C, Clark B, Kadry A
US EPA

10:30 AM- Noon
Key Ballroom #4

W2-D Symposium: Multi-Criteria Analysis of Foodborne Zoonotic Disease Risks - International Perspectives
Chair: Valerie Davidson

10:30 AM **W2-D.1**
Ranking foodborne parasites: outcomes of an expert-based multi-criteria analysis
Batz MB, Robertson LJ, van der Giessen JW, Dixon BR, Caipo ML, Kojima M, Cahill S
University of Florida

10:50 AM **W2-D.2**
Development of a multifactorial risk prioritization framework for foodborne pathogens
Fazil A
Public Health Agency of Canada

11:10 AM **W2-D.3**
A multidisciplinary and evidence-based methodology applied to prioritize diseases of food-producing animals and zoonoses
*Humblet MF, Vandeputte S, Albert A, Gosset C, Kirschvink N, Haubruge E, Fecher-Bourgeois F, Pastoret PP, Saegerman C**
University of Liege

11:30 AM **W2-D.4**
MCDA-ranking of food safety issues to inform policy-makers in Uganda
Davidson VJ, Kenny MF, Fazil A, Cahill S, Clarke R
University of Guelph, Food & Agricultural Organization of the United Nations, Public Health Agency of Canada, FAO

10:30 AM- Noon
Key Ballroom #5

W2-E Ground & Drinking Waters: New Methods, New Analysis
Chair: Donna Vorhees

10:30 AM **W2-E.1**
Computer-based exposure modeling to support drinking water guidance
Greene CW, Wilkes C, Koontz M, Shubat PJ
Minnesota Department of Health, Versar, Inc.

10:50 AM **W2-E.2**
Pesticides in groundwater of the United States: occurrence and decadal-scale changes
Toccalino PL, Gilliom RJ, Lindsey BD, Rupert MG
US Geological Survey

11:10 AM **W2-E.3**
Evaluating public health benefits from reductions in drinking water lead levels at US Schools
Triantafyllidou S, Le TH, Gallagher DL, Edwards MA*
Virginia Tech

11:30 AM **W2-E.4**
Exposure to highly contaminated drinking water in a rural Nigerian village
Kponee K, Vorhees D, Heiger-Benays W
Boston University School of Public Health

Wednesday Sessions Sponsored by Specialty Groups

W2-A	*DASG*	*W3-J*	*EBASG, Society for Benefit-Cost Analysis*
W2-D	*MRASG*		
W2-E	*EASG*	*W4-A*	*DASG*
W2-I	*EISG*	*W4-E*	*EASG*
W3-A	*DASG*	*W4-F*	*RPLSG*
W3-E	*EASG*	*W4-H*	*RCSG*
W3-F	*RPLSG*	*W4-J*	*EBASG, Society for Benefit-Cost Analysis*
W3-I	*EISG*		

10:30 AM- Noon
Key Ballroom #6
W2-F Symposium: What's New in Agency Peer Review: Best Practices Supporting Risk Assessment
Chair: Jacqueline Patterson

10:30 AM **W2-F.1**
Legal context for US federal agency peer reviews
Conrad JW, Jr, Paulson G, Reiss R, Patterson J
Conrad Law & Policy Counsel

10:50 AM **W2-F.2**
Developments in scientific peer review at EPA
*Paulson G, Brennan T**
US Environmental Protection Agency

11:10 AM **W2-F.3**
What can we learn and apply from journal peer review?
Reiss R
Exponent

11:30 AM **W2-F.4**
Best practices for independent peer reviews
Patterson J, Nance P, Dourson M
Toxicology Excellence for Risk Assessment

Plenary Luncheon
Noon-1:30 PM
Key Ballroom

"Risk and Opportunity: Managing Risk for Development"

(Luncheon is included in Registration fee)

10:30 AM- Noon
Peale A&B
W2-G Panel Discussion: Effective Risk Communication
Chair: Louie Rivers

Speakers Include:
Joe Arvai, Roger Kasperson, Robyn Wilson, Cindy Jardine, Lauren Fleishman, Frederic Bouder, Julie Downs, Ragnar Lofstedt, Adam Zwickle and others

The field of risk communication is at a crossroads. Interest in risk communication across multiple fields is considerable, and research and practice focused on it continues to unfold at a rapid pace. However, there is still little agreement among scholars and practitioners about what constitutes effective risk communication. The goal for this roundtable discussion, spurred by the release of Effective Risk Communication a new book from EarthScan, is to begin a critical examination of the current state of risk communication. We will explore the past and future of risk communication focusing on what we have learned from past work, and what is needed to push the field forward. The roundtable will take a broad view of risk communication, presenting perspectives from multiple disciplines (psychology, communications, risk sciences, decision sciences, etc.), a diversity of practitioners, and a range of contexts. The roundtable will feature contributors to the book, each offering a unique perspective toward the study and practice of risk communication. The roundtable will also provide a forum for dialogue between the roundtable participants and the audience moderated by the editors of the book.

10:30 AM- Noon
Johnson A
W2-H Improving Risk Models for Security and Defense
Chair: Jun Zhuang

10:30 AM **W2-H.1**
A vector approach to measuring deterrence in adversary informed, scenario based risk analyses
Munns J
Schafer Corporation

10:50 AM **W2-H.2**
Robust screening policy—balancing congestion and security in the presence of strategic applicants with private information
Xu J, Song C, Zhuang JJ
University at Buffalo, SUNY

11:10 AM **W2-H.3**
Conquering the iron triangle of SME elicitation
Nilsen M, Hawkins B, Cox J, Gooding R, Whitmire M
Battelle Memorial Institute, Department of Homeland Security Chemical Security Analysis Center

11:30 AM **W2-H.4**
Probabilistic coherence weighting for increasing accuracy of expert judgment
Olson KC, Karvetski CW
George Mason University

10:30 AM- Noon
Latrobe
W2-I Roundtable: Could, and Should, SRA do more to promote the Creation and Use of Living Risk Assessments?
Chair: Rob Goble

Panelists include:
Vicki Bier, University of Wisconsin-Madison
Frederic Bouder, Maastricht University
David Bussard, US EPA
Robin Cantor, Exponent
Louis Anthony Cox, Jr., Cox Associates
Adam Finkel, University of Pennsylvania and University of Medicine and Dentistry of New Jersey
Ortwin Renn, University of Stuttgart

10:30-11:30 AM
Ruth
W2-J Decision Frameworks for Invasive Species and Water Quality
Chair: Patricia Wald-Hopkins

10:30 AM **W2-J.1**
Estimating the risk of rabies entry into the state of Hawaii
Fitzpatrick BG, Angelis E, Polidan EJ
Tempest Technologies

10:50 AM **W2-J.2**
Putting eggs in different baskets: diversification in early planning of invasive species surveillance prorams
Yemshanov D, Koch FH, Lu B, Haack RA
Canadian Forest Service, USDA Forest Service, Research Triangle Park, USDA Forest Service, East Lansing

11:10 AM **W2-J.3**
Assessing and managing ANS risk in Great Lakes and Mississippi River
Yoe CE
Notre Dame of Maryland University

10:30 AM- Noon
Johnson B
W2-K Building More Resilient Infrastructure
Chair: Eva Andrijcic

10:30 AM **W2-K.1**
Mapping societal functions, flows and dependencies to strengthen community resilience – results from an initial study
*Hassel H, Johansson J**
Lund University

10:50 AM **W2-K.2**
Power outage analysis for Hurricane Isaac
Tonn GL, Guikema SD
Johns Hopkins University

11:10 AM **W2-K.3**
Managing risk through resilience and recovery in seaport operations
Salazar DE, Chatterjee S
University of Southern California

11:30 AM **W2-K.4**
Building a more resilient water sector by assessing and responding to potential vulnerabilities
Baranowski C
US Environmental Protection Agency

1:30 PM - 3:00 PM

Key Ballroom #1

W3-A Symposium: Risk Assessment, Policy Learning & Economic Opportunities in Safer Chemical Decision-Making

Chair: George Gray

1:30 PM **W3-A.1**

Competing considerations for making safer chemical decisions

Francis RA, Gray GM, Tanir JY

George Washington University

1:50 PM **W3-A.2**

Comparative risk, life-cycle impact, and alternatives assessments: concepts and perspectives

McKone TE

University of California, Berkeley

2:10 PM **W3-A.3**

Policy learning, chemicals, and risk: can policy innovation keep up with technology change?

Fiorino D

American University

1:30 PM - 3:00 PM

Key Ballroom #2

W3-B Symposium: Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part I

Co-Chairs: Joseph Rodricks, Paolo Boffetta

1:30 PM **W3-B.1**

Integration of the science necessary for assessing potential carcinogenicity of formaldehyde: introduction

Rodricks JV, Kaden DA

ENVIRON International Corp

1:50 PM **W3-B.2**

Review of the epidemiologic evidence for formaldehyde as a human leukemogen

Checkoway H, Boffetta P, Mundt KA, Mundt D, Lees P

University of Washington, Seattle, Mt. Sinai Hospital, ENVIRON International Corporation, John Hopkins Bloomberg School of Public Health

2:10 PM **W3-B.3**

Mode of action studies on inhaled formaldehyde causing leukemia

Swenberg J, Moeller M, Lu K, Yu R, Andrews Kingon G, Lai Y, Edrissi B, Dedon P

University of North Carolina at Chapel Hill, Massachussetts Institute of Technology

2:30 PM **W3-B.4**

Pharmacokinetics of formaldehyde and the impact of endogenous levels on uptake

Clewell, III HJ, Andersen M, Gentry PR

The Hamner Institutes for Health Sciences, ENVIRON International Corporation

1:30 PM - 3:00 PM

Key Ballroom #3

W3-C Symposium: Emerging Risk Assessment Challenges & Opportunities for the Developing Countries, Part II

Co-Chairs: Abdel Kadry, Mohamed Shereif

1:30 PM **W3-C.1**

A preliminary characterization of public health risks from industrial operations in Jubail

*Antoniou G, Gebrayel A, Mhanna P, Sarri M, Stylianou K, Kouis P**

Cyprus International Institute, Cyrus University of Technology

1:50 PM **W3-C.2**

A global calculator for estimating the benefits of urban fine particulate matter reductions

Greco SL, Belova A, Huang J, Ghio C

Abt Associates

2:10 PM **W3-C.3**

A framework to assess aflatoxin public health impacts in developing countries with application to Nigeria and Tanzania

Belova A, Narayan T*, Brown L, Haskell J, Bozeman S, Lamb J*

Abt Associates Inc

2:30 PM **W3-C.4**

Unveiling the spatio-temporal cholera outbreak in Cameroon: a model for public health engineering

Convertino MC, Liang SL

University of Minnesota, University of Florida

1:30 PM - 3:00 PM

Key Ballroom #4

W3-D New Attributory Prioritization of Quantitative Microbial Risk Assessment Methods

Chair: Moez Sanaa

1:30 PM **W3-D.1**

Using time series analysis to investigate food causes of foodborne illnesses

Hoffmann SA, Ashton L, Berck P, Todd J

USDA Economic Research Service, University of California, Berkeley

1:50 PM **W3-D.2**

FDA's risk assessment model for designating high-risk foods pertaining to product tracing required by FSMA

Chen Y, Dennis S, McGarry S

Food and Drug Administration

2:10 PM **W3-D.3**

Prioritization of roof-harvested rainwater pathogens to guide treatment and use

Hamilton KH, Haas CN

Drexel University

2:30 PM **W3-D.4**

A swift quantitative microbiological risk assessment (sQMRA) - tool: improved version

Evers EG, Chardon JE

National Institute for Public Health and the Environment

1:30 PM - 3:00 PM

Key Ballroom #5

W3-E Bioavailability & Biomonitoring

Chair: Robert Scofield

1:30 PM **W3-E.1**

Application of lead and arsenic bioavailability in human health risk assessment for a sediment site

Liu CL, Luke NL

CDM Smith

1:50 PM **W3-E.2**

Evaluating the risk of human exposure to environmental PCDD/Fs using biomonitors

Augusto S, Pinho P, Botelho MJ, Palma-Oliveira JM, Branquinho C*

University of Lisbon

2:10 PM **W3-E.3**

Evaluation of population-based biomonitoring data for risk assessment: an environmental-wide association study approach

Le HQ, Lander DR, Starks SE, Kreckmann KH, Symons JM

DuPont Epidemiology Program, DuPont Haskell Global Centers for Health and Environmental Sciences

2:30 PM **W3-E.4**

Are epidemiological associations of higher chemical concentrations in blood with health effects meaningful?

Clewell HJ, Yoon M, Wu H, Verner MA, Longnecker MP

The Hamner Institutes for Health Sciences, Harvard Medical School, Boston

1:30 PM - 3:10 PM

Key Ballroom #6

W3-F Symposium: Global Catastrophic Risk

Chair: Anthony Barrett

1:30 PM **W3-F.1**

Risk communcation and information needs for anticipated catastrophic threats by NEOs

Race MS

SETI Institute

1:50 PM **W3-F.2**

Analyzing and reducing the risks of inadvertent nuclear war between the United States and Russia

Barrett AM

Global catastrophic risk institute

2:10 PM **W3-F.3**

Assessing the consequences of nuclear weapons use: the challenge of incomplete knowledge

Frankel MJ, Scouras J, Ullrich GW*

Johns Hopkins University, Penn State University, Shafer Corporation

2:30 PM **W3-F.4**

The resilience of human civilization in the face of global catastrophes

Baum S

Global Catastrophic Risk Institute

2:50 PM **W3-F.5**

Christian apocalyptic literature in theological scholarship & the 'prepper' movement

Fusco MP

Global Catastrophe Research Institute

1:30 PM - 2:30 PM

Johnson A

W3-H All Hazards Modeling

Chair: Jiyoung Park

1:30 PM **W3-H.1**

Hurricane Sandy and lost four days in the U.S. economy

Park J, Son M, Park C, Richardson H

State University of New York at Buffalo

1:50 PM **W3-H.3**

Managing disaster risk strategies in economic systems based on sectoral vulnerability analysis

Yu KS, Tan RR, Santos JR

De La Salle University, The George Washington University

2:10 PM **W3-H.4**

Ideal disaster relief?: Using the IFRC code of conduct in model development

Coles JB, Zhuang J

University at Buffalo

1:30 PM - 3:00 PM

Latrobe

W3-I Integrating Human Factors into Engineering Risks

Chair: Raul Figueroa

1:30 PM **W3-I.1**

Heuristics in policy relevant science: an analytical framework for characterising the strengths and limits of formal risk and decision analysis

MacGillivray BH

Cardiff University

1:50 PM **W3-I.2**

A model-based, scenario-driven human reliability analysis method

Ekanem NJ, Mosleh A

University of Maryland

2:10 PM **W3-I.3**

A risk analysis study to systematically address the critical role of human and organizational factors in negative pressure test for the offshore drilling industry

Tabibzadeh M, Meshkati N

University of Southern California

2:30 PM **W3-I.4**

Beyond the ideal – Obstacles to risk management and ways to overcome them

Hallegatte S

World Bank

1:30 PM - 3:00 PM

Ruth

W3-J Symposium: Improving Maritime Risk Estimates Supporting Federal Regulatory and Policy Decisions

Chair: Jennifer Baxter

1:30 PM **W3-J.1**

Quantitative adjustments addressing under-reporting of baseline risks associated with recreational boating using national health care databases

Baxter J, Robinson L, Metz D, Bolthrunis S

Industrial Economics Inc, Havard School of Public Health

1:50 PM **W3-J.3**

The development and use of the bureau of ocean energy management's Offshore Environmental Cost Model (OECM) to evaluate the environmental risks of offshore energy development

Price JC, Strellec K

Industrial Economics, Inc., Bureau of Ocean Energy Management

2:10 PM **W3-J.4**

Econometric model estimating the effectiveness of life jacket wear in recreational boating using data from Coast Guard's Marine Information Safety and Law Enforcement (MISLE) database

Viauroux C, Gungor A

University of Maryland, Baltimore County, US Coast Guard

1:30 PM - 3:00 PM

Johnson B

W3-K Symposium: Foundational Issues in Risk Analysis, Part III

Chair: Torbjorn Bjerga

1:30 PM **W3-K.1**

Probability theory for inductive reasoning: the "necessarist" viewpoint as an alternative, and supplement, to subjective probability

North DW

NorthWorks, Inc.

1:50 PM **W3-K.2**

Reflections on how to conceptualize and assess the performance and risk of different types of complex systems

Nateghi R

Johns Hopkins University

2:10 PM **W3-K.3**

Adaptive risk management using the new risk perspectives – an example from the oil and gas industry

Bjerga T, Aven T

University of Stavanger

2:30 PM **W3-K.4**

Decision criteria for updating test intervals for well barriers

Gelyani AM, Abrahamsen EB, Selvik JT

University of Stavanger, Norway, International Research Institute of Stavanger, Norway

3:30 PM - 5:00 PM

Key Ballroom #1

W4-A Symposium: Characterizing Causality for Policy Decisions

Chair: Beth Osterling Owens

3:30 PM **W4-A.1**

Determining causality in environmental assessments

Vandenberg J, Cogliano V, Owens EO, Cooper G, Ross M

National Center for Environmental Assessment, US Environmental Protection Agency, Research Triangle Park, and Washington, DC

3:50 PM **W4-A.2**

Evaluation of causality in the IARC monographs

Loomis D, Straif K

International Agency for Research on Cancer

4:10 PM **W4-A.3**

Incorporation of weight-of-evidence best practices in the National Ambient Air Quality Standards review process

Goodman JE, Prueitt RL, Sax SN, Bailey LA, Rhomberg LR

Gradient

4:30 PM **W4-A.4**

Transparently implementing the causal framework in the EPA NAAQS review

Patel M, Owens EO, Kirrane E, Ross M

National Center for Environmental Assessment, US Environmental Protection Agency

3:30 PM - 5:00 PM

Key Ballroom #2

W4-B Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part II

Co-Chairs: Joseph Rodricks, Paolo Botfetta

3:30 PM **W4-B.1**

Relevance of genetic changes in circulating blood cells following formaldehyde exposure

Albertini RJ, Thirman MJ

University of Vermont, University of Chicago

3:50 PM **W4-B.2**

Predicting the risk of Acute Myeloid Leukemia (AML) using peripheral blood cells or cells in culture has questionable biological relevance

Irons RD, Kerzic PJ

Fudan University, China, Cinpathogen, University of Colorado Health Sciences Center

4:10 PM **W4-B.3**

Integrating toxicological & epidemiological evidence of carcinogenicity: Application of Epid-Tox framework for evaluating relationships between formaldehyde & nasopharyngeal cancer & myeloid leukemia

Boffetta P, Mundt KA, Mundt DJ, Checkoway H, Swenberg J, Adami H-O

Icahn School of Medicine at Mount Sinai, ENVIRON International Corporation, University of Washington, Seattle, University of North Carolina at Chapel Hill, Harvard University School of Public Health

4:30 PM **Discussion**

3:30 PM - 5:10 PM

Key Ballroom #3

W4-C Risk Analysis Uncertainty & Decision-Making

Chair: Myriam Merad

3:30 PM **W4-C.1**

From exotic to endemic : a stakeholder-driven framework examining disease prioritisation and the biosecurity continuum.

Brookes VJ, Hernández-Jover M, Cowled B, Holyoake PK, Ward MP

University of Sydney, Australia, Charles Sturt University, Australia, AusVet Animal Health Services, Australia, Department of Environment and Primary Industries, Australia

3:50 PM **W4-C.2**

Determining risk-related patterns in human operator error analysis

Yemelyanov AM

GSW State University

4:10 PM **W4-C.3**

A decision support framework for developing regional energy strategies

Bessette DL, Campbell-Arvai V, Arvai JL

University of Calgary

4:30 PM **W4-C.4**

A risk assessment approach that facilitates site redevelopment and remediation when future site uses are uncertain

Long KL, Nielsen JM, Ramacciotti FC, Sandvig RM, Song S

ENVIRON International Corporation

4:50 PM **W4-C.5**

Is it possible to assess the quality of the governance? Conclusions of the national working group on governance of sustainability within public organizations

Merad M , Marcel F

INERIS

3:30 PM - 5:00 PM

Key Ballroom #4

W4-D Symposium: Strategic Research Planning for Multiwalled Carbon Nanotubes (MWCNTs): Moving Towards Risk Analyses that Inform Future MWCNT Risk Management Decisions

Chair: Christina Powers

3:30 PM **W4-D.1**

Comprehensive environmental assessment: strategically linking research, assessment and risk management — applied to multiwalled carbon nanotubes

Powers CM, Lehmann G, Gift J, Grieger K, Money M, Hendren CO, Beaudrie C, Davis JM

US EPA

3:40 PM **W4-D.2**

Toxicological and health effects assessment efforts for MWCNTs in NCNHIR Consortium

Nadadur S

NIEHS

3:50 PM **W4-D.3**

Risk assessment and management of multiwalled carbon nanotubes: recent developments in regulatory approaches

*Morris J, Sayre P, Alwood J**

US Environmental Protection Agency

4:00 PM **W4-D.4**

Closing research gaps for safer design principles for multiwalled carbon nanotubes; molecule, process, and products

Geraci CL

National Institute for Occupational Safety and Health

4:10 PM **W4-D.5**

Life cycle considerations for nano-enabled products containing multi-walled carbon nanotubes (MWCNTs): research to inform future risk analyses and risk management

Sayes CM

RTI International

4:20 PM **Discussion**

T-Shirt Giveaway

Be a Die Hard Risk Analyst (DHRA)

5:00–5:30 PM,

Registration Area

Stay to the end of the sessions and receive a free T-shirt!

3:30 PM - 5:10 PM

Key Ballroom #5

W4-E Symposium: Occupational Exposure Assessment: Risk Characterization and Risk Communication

Chair: Frank Hearl

3:30 PM **W4-E.1**

Pandemic response for workers: controlling occupational risk

Hearl FJ

National Institute for Occupational Safety and Health

3:50 PM **W4-E.2**

Risk assessment as a core competency for industrial hygiene

Boelter FB

ENVIRON International

4:10 PM **W4-E.3**

Lessons for information exchange in occupational risk science: the OARS Initiative

Maier A, Nance P, Ross CS*

Toxicology Excellence for Risk Assessment

4:30 PM **W4-E.4**

Risk of occupational asbestos disease based on biomarkers

Hearl F, Boelter F, Armstrong T, Rasmuson J, Meier A*

Chemistry & Industrial Hygiene, Inc.

4:50 PM **W4-E.5**

Estimates of legionnaires disease risk from whirlpool spas

Armstrong TW

TWA8HR Occupational Hygiene Consulting, LLC

3:30 PM - 5:00 PM

Key Ballroom #6

W4-F Symposium: Global Risk Governance

Chair: Seth Baum

3:30 PM **W4-F.1**

Global Risk Governance for Genome Editing

Kuzma J

North Carolina State University

3:50 PM **W4-F.2**

Minimizing global catastrophic and existential risks from emerging technologies through international law

Wilson GS

Global Catastrophic Risk Institute

4:10 PM **W4-F.3**

Past the threshold for existential risks: balancing existential risk uncertainty and governance

Tonn BE, Stiefel D, Feldman D

University of Tennessee-Knoxville

4:30 PM **W4-F.5**

Global risks, catastrophes, crises, regulation and liability

Wiener JB

Duke University

3:30 PM - 6:30 PM

Peale A&B

W4-G Symposium: The Naphthalene Research Program: From Problem Formulation to Risk Assessment

Chair: Jo Anne Shatkin

3:30 PM **W4-G.1**

Naphthalene rodent inhalation bioassays and assessment of risk to exposed humans: problem formulation

Reitman F, Sun T-J, Beatty P, LeHuray AP, Hammon TL, Juba MH, Palermo C, Lewis RJ, White RD

Shell, Chevron, American Petroleum Institute, Naphthalene Council, ConocoPhillips, Koppers, Inc., ExxonMobil Biomedical Sciences, Inc.

3:50 PM **W4-G.2**

Hypothesis-based weight-of-evidence and dose-response evaluation for naphthalene carcinogenicity

Rhomberg LR, Bailey LA, Nascarella MA

Gradient

4:10 PM **W4-G.3**

Assessing the Human Health Risks from Exposure to Naphthalene

Flowers L, Keshava C, Chiu W

USEPA, Washington, DC

3:30 PM - 5:10 PM

Johnson A

W4-H Presenting Uncertainty to Inform Decision-Making

Chairs Joe Arvai

3:30 PM **W4-H.1**

How do maps influence perceived accuracy and validity and how do these perceptions influence risk beliefs?

Severtson DJ

University of Wisconsin-Madison

3:50 PM **W4-H.2**

The impact of narrative messages on prospect theory framing effects.

Steinhardt JS, Shapiro MA

Cornell University

4:10 PM **W4-H.3**

The motivated evaluation of numerical uncertainty ranges

Dieckmann N, Peters E, Gregory R

Oregon Health & Science University, Decision Research, The Ohio State University

4:30 PM **W4-H.4**

Risk-related uncertainty and its relationship with citizens' demand for regulation and institutional trust

Poortvliet PM, Lokhorst AM

Wageningen University

4:50 PM **W4-H.5**

Designing an electricity bill to motivate savings: the effect of format on responses to electricity use information

Canfield CI, Bruine de Bruin W, Wong-Parodi G

Carnegie Mellon University, Leeds University Business School

3:30 PM - 5:10 PM

Ruth

W4-J Symposium: Evaluating the Risk Reduction Outcomes of Regulation

Chair: Susan Dudley

3:30 PM **W4-J.1**

Moving forward in looking back: how to improve retrospective regulatory review

Coglianese C

University of Pennsylvania

3:50 PM **W4-J.2**

Regulatory improvement commission: a politically viable approach to US regulatory reform

Mandel M, Carew D

Progressive Policy Institute

4:10 PM **W4-J.3**

Have historical reductions in ozone and fine particulate matter caused reductions in mortality rates?

Cox T

Cox Associates, University of Colorado

4:30 PM **W4-J.4**

Do changes in exposure lead to changes in outcomes? Challenges in ascertaining benefits from reductions in environmental exposure levels

Aylward LL

Summit Toxicology, LLP

4:50 PM **W4-J.5**

A look back at regulatory lookback efforts

Dudley SE

The George Washington University

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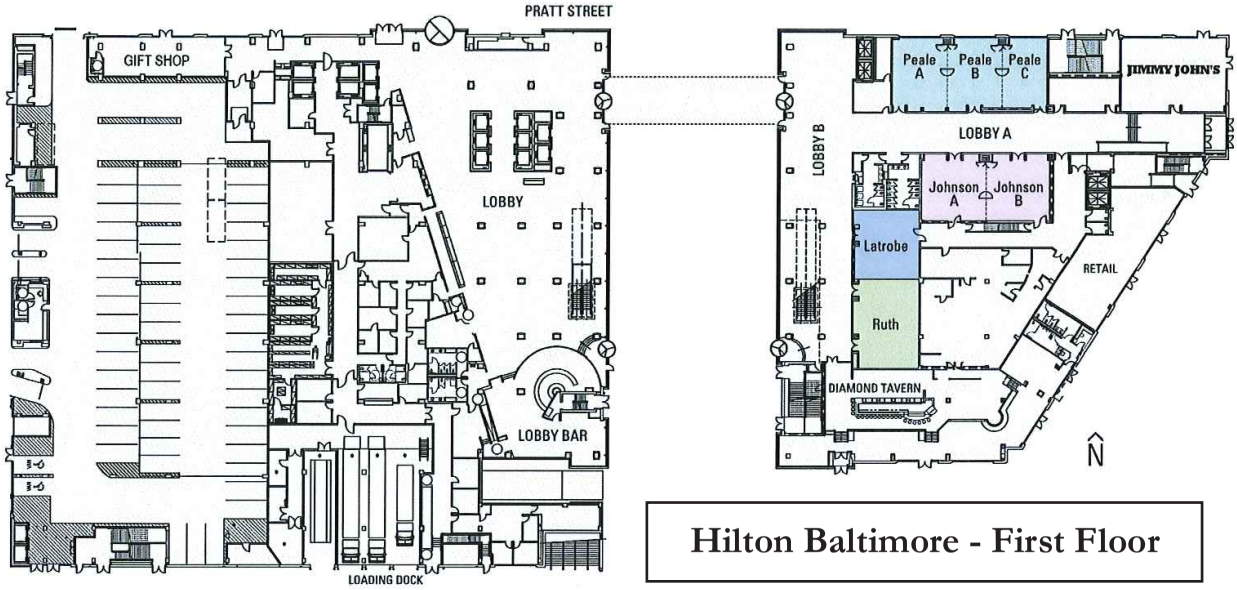

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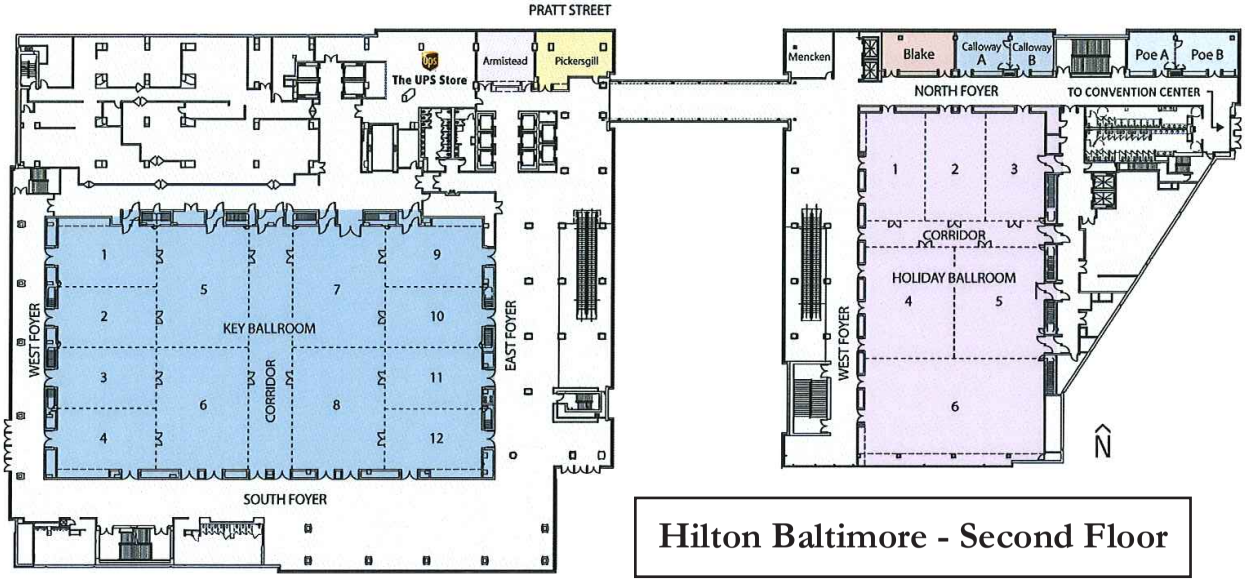

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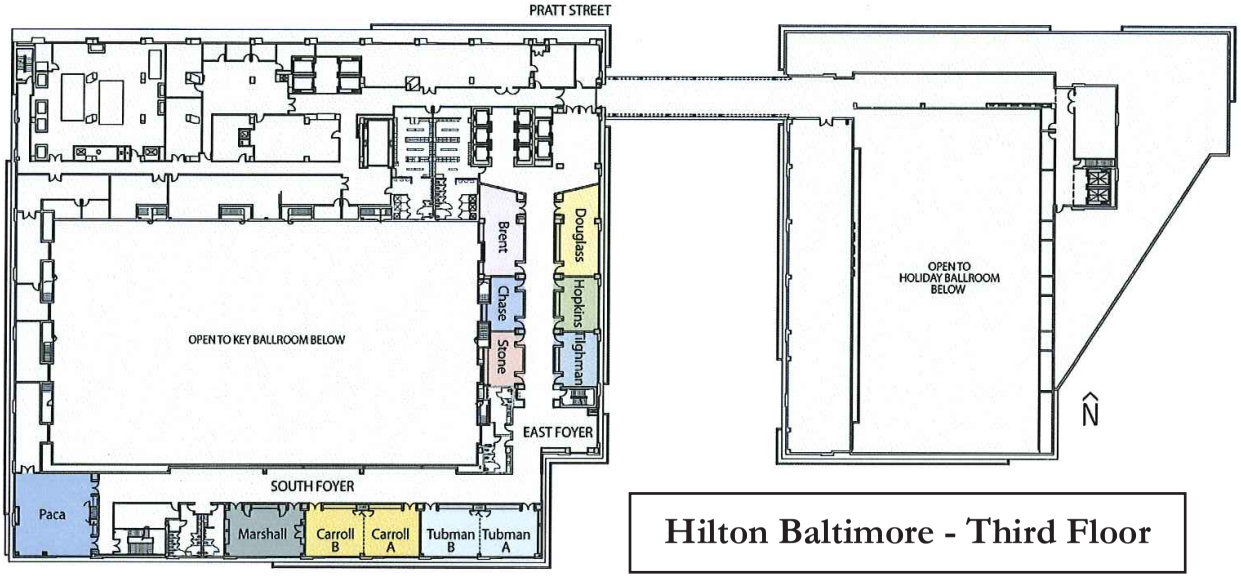

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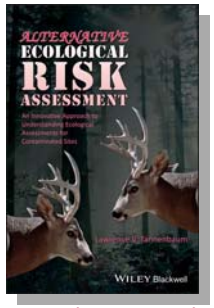

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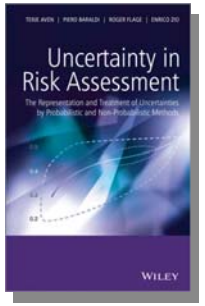

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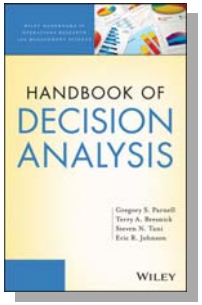

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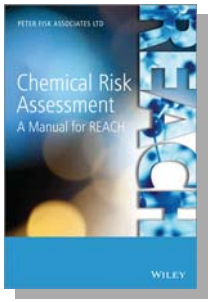

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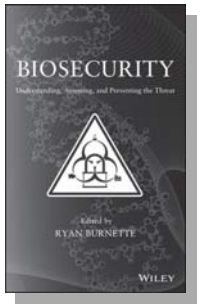

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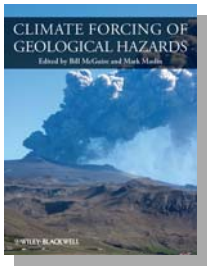

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