Society for Risk Analysis

Risk Analysis for Better Policies

2013 Annual Meeting
8-11 December
Hilton Baltimore
Baltimore, Maryland

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Trina von Stackelberg
Henry Willis
Robyn Wilson

www.SRA.org
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703.790.1745; FAX: 703.790.2672  SRA@BurkInc.com
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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 partici-
 pant 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 con-
nect the dots. Make YOUR SRA experience really pay off! A continental break-
fast 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

<table>
<thead>
<tr>
<th>Sunday 8 December</th>
<th>Monday 9 December</th>
<th>Tuesday 10 December</th>
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<tbody>
<tr>
<td><strong>Membership Committee</strong></td>
<td><strong>New Member, Fellows and International Members Breakfast</strong></td>
<td><strong>Grad Student Breakfast</strong></td>
</tr>
<tr>
<td>8:00-9:00 AM - Brent</td>
<td>7:00-8:00 AM - Key Ballroom #4</td>
<td>7:00-8:00 AM - Peale C</td>
</tr>
<tr>
<td><strong>SRA Council Meeting</strong></td>
<td><strong>All SRA Fellows as well as 2012 and 2013 New Members (badges with a New Member ribbon) are welcome to attend.</strong></td>
<td><strong>Audit Committee</strong></td>
</tr>
<tr>
<td>Noon–5:00 PM - Calloway A&amp;B</td>
<td><strong>Regional Organization Chairs Breakfast/Meeting</strong></td>
<td>7:00-8:30 AM - Chase</td>
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<tr>
<td><strong>Editorial Staff Meeting</strong></td>
<td><strong>Communications Committee</strong></td>
<td><strong>Business Networking Breakfast</strong></td>
</tr>
<tr>
<td>2:00-4:00 PM - Poe A&amp;B</td>
<td>7:30-8:30 AM - Hopkins</td>
<td>7:30-8:15 AM - Key Ballroom #12</td>
</tr>
<tr>
<td><strong>Publications Committee</strong></td>
<td><strong>Conferences and Workshops Committee</strong></td>
<td><strong>Specialty Group Chairs Breakfast</strong></td>
</tr>
<tr>
<td>4:00-5:00 PM - Poe A/B</td>
<td>7:30-8:30 AM - Chase</td>
<td>7:30-8:30 AM - Stone</td>
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<tr>
<td><strong>Editorial Board Meeting</strong></td>
<td><strong>Opening Plenary Session</strong></td>
<td><strong>Finance Committee</strong></td>
</tr>
<tr>
<td>5:00-6:00 PM - Poe A/B</td>
<td>8:30-10:00 AM - Key Ballroom #7-12</td>
<td>8:00-10:00 AM - Hopkins</td>
</tr>
<tr>
<td><strong>SRA Welcome Reception – (Cash Bar)</strong></td>
<td><strong>Specialty Group Meetings - Pick up your box lunch by the SRA Registration Desk</strong></td>
<td><strong>SRA Awards Luncheon and Business Meeting</strong></td>
</tr>
<tr>
<td>6:00–7:30 PM - Key Ballroom South Foyer</td>
<td>12:05-1:30 PM - See Page 4</td>
<td>Noon-1:30 PM - Key Ballroom #7-12</td>
</tr>
<tr>
<td><strong>World Congress 2015 Meeting</strong></td>
<td><strong>Risk Management SG Officers</strong></td>
<td><strong>SRA Council Meeting</strong></td>
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<tr>
<td>7:45–8:30 PM - Chase</td>
<td>3:30-4:30 PM - Peale C</td>
<td>6:30-10:00 PM - Key Ballroom #12</td>
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<table>
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<tr>
<th>Wednesday 11 December</th>
<th><strong>Plenary Luncheon</strong></th>
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<tr>
<td><strong>Plenary Session</strong></td>
<td>8:30-10:00 AM - Key Ballroom #7-12</td>
</tr>
<tr>
<td><strong>Plenary Luncheon</strong></td>
<td>Noon-1:30 PM - Key Ballroom #7-12</td>
</tr>
<tr>
<td><strong>T-Shirt Giveaway</strong></td>
<td>Be a Die Hard Risk Analyst - Stay until the end of the sessions and receive a t-shirt</td>
</tr>
<tr>
<td><strong>T-Shirt Giveaway</strong></td>
<td>5:00–5:30 PM - East Foyer</td>
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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

Key to Specialty Group Designations

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

Speaker Ready Room Hours
Hilton Baltimore - Mencken

<table>
<thead>
<tr>
<th>Day</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Sunday</td>
<td>3:00 - 8:00 PM</td>
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<tr>
<td>Monday &amp; Tuesday</td>
<td>7:00 AM - 5:00 PM</td>
</tr>
<tr>
<td>Wednesday</td>
<td>7:00 AM - 12:00 PM</td>
</tr>
</tbody>
</table>
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, PC (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, TW/4HR 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 toxics. 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 elicitation, 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 Giff, 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

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Location</th>
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<tbody>
<tr>
<td>7:00-8:00 AM</td>
<td><strong>New Member, Fellows and International Members Breakfast</strong> - <em>Key Ballroom #4</em></td>
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<tr>
<td>8:30-10:00 AM</td>
<td><strong>Plenary Session</strong>, “Advice to Policy Makers: The Role of Risk Analysis” - <em>Key Ballroom #7-12</em>&lt;br&gt;Panelists Include: Luis Cifuentes, Anne Glover, Sir Mark Walport</td>
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<tr>
<td>10:00-10:30 AM</td>
<td><strong>Coffee Break</strong> - <em>Key Ballroom South Foyer</em></td>
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<tr>
<td>10:30 AM-Noon</td>
<td><strong>M2 Symposium:</strong> Cross-Disciplinary Methods for Research Synthesis, Part I</td>
<td><em>Key Ballroom #1</em></td>
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<td></td>
<td><strong>M2-B Symposium:</strong> Integrating Diverse Streams of Evidence for Chemical Assessments: Getting from Association to Causation, Part I</td>
<td><em>Key Ballroom #2</em></td>
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<td><strong>M2-C:</strong> Individual and Societal Risks and Morality</td>
<td><em>Key Ballroom #3</em></td>
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<td><strong>M2-D:</strong> Modeling for Chemical Risk Assessment (PBPK, Cumulative)</td>
<td><em>Key Ballroom #4</em></td>
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<td><strong>M2-E Symposium:</strong> World Cafe, Literally: Global Burden of Disease Caused by Foodborne Toxins</td>
<td><em>Key Ballroom #5</em></td>
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<tr>
<td>Noon-1:30 PM</td>
<td><strong>M3-A Poster Platform:</strong> Applications in the Expanding Field of Risk Management</td>
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<td><strong>M3-B:</strong> Integrating Diverse Streams of Evidence for Chemical Assessments: Getting from Association to Causation, Part II</td>
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<td><strong>M3-C Symposium:</strong> Foundational Issues in Risk Analysis, Part I</td>
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<td><strong>M3-D:</strong> Improving Quantitative Risk Assessment: New Strategies</td>
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<td><strong>M3-E:</strong> Fine Particulates: New Measurements and Questions Answered</td>
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<td>1:30-3:00 PM</td>
<td><strong>Coffee Break</strong> - <em>Key Ballroom South Foyer</em></td>
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<td>3:00-3:30 PM</td>
<td><strong>M4 Symposium:</strong> Understanding Human Health Risks from Dietary Arsenic Exposure</td>
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<td><strong>M4-B Symposium:</strong> A New Look at the Toxicity of Bisphenol A and Public Health</td>
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<td><strong>M4-C Symposium:</strong> Foundational Issues in Risk Analysis, Part II</td>
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<td><strong>M4-D Symposium:</strong> Expecting the Unexpected: Risk Informed Policies &amp; Procedures to Predict, Detect &amp; Control Emerging Food Safety Risk</td>
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<td>3:30-5:00 PM</td>
<td><strong>M4-E:</strong> Fuel, Asbestos, Dust, Spores &amp; Death</td>
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<tr>
<td>6:00-8:00 PM</td>
<td><strong>Poster Reception, Key Ballroom #7-12</strong></td>
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| 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*                                                                           |
| 10:30 AM-     | **M2-F**: Global Scale Risks: Models & Processes of Risk Analysis                           |
| Noon-1:30 PM  | **M2-G**: Public Understanding of New Technology                                           |
| Noon-1:30 PM  | **M2-H**: Bioterrorism Application                                                           |
| Noon-1:30 PM  | **M2-I Symposium**: Advances in Risk Models for Infrastructure Management and Investment    |
| Noon-1:30 PM  | **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.* |
| 1:30-3:00 PM  | **M3-F**: Risk & Environmental Governance                                                   |
| 1:30-3:00 PM  | **M3-G Symposium**: Risk Perception & Responses to Weather Hazards                          |
| 1:30-3:00 PM  | **M3-H Roundtable**: Risk in Changed Circumstances: Views of the News Editors              |
| 1:30-3:00 PM  | **M3-I Symposium**: Risks of Transportation Disruptions and Transporting Dangerous Goods    |
| 1:30-3:00 PM  | **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? |
| 3:30-5:00 PM  | **M4-G**: Public Response to Natural and Technological Disasters                             |
| 3:30-5:00 PM  | **M4-H**: Informing Policy with Risk Perception and Management                              |
| 3:30-5:00 PM  | **M4-I**: Risk and Rewards of Natural Resources and Natural Disasters                       |
| 3:30-5:00 PM  | **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

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Key Ballroom #1</th>
<th>Key Ballroom #2</th>
<th>Key Ballroom #3</th>
<th>Key Ballroom #4</th>
<th>Key Ballroom #5</th>
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<tbody>
<tr>
<td>7:30-8:15 AM</td>
<td>Networking Breakfast - <em>Key Ballroom #12</em></td>
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<tr>
<td>8:30-10:00 AM</td>
<td>T1-A Poster Platform: Traditional and Social Media Effects</td>
<td>T1-B: EPAS IRIS: It's A New Program, Part I</td>
<td>T1-C: Managing Disasters I</td>
<td>T1-D: Zoonotic Diseases: Risk &amp; Characterization of Human Illness</td>
<td>T1-E: Modeling Toxicants in the Environment</td>
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<td>10:00-10:30 AM</td>
<td>Coffee Break - <em>Key Ballroom South Foyer</em></td>
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<td>Noon-1:30 PM</td>
<td>SRA Awards Luncheon and Business Meeting - <em>Key Ballroom 7-12</em></td>
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<tr>
<td>3:30-5:00 PM</td>
<td>T4-A: PRA &amp; Statistical Modeling Applications</td>
<td>T4-B Symposium: Proposed Methods for U.S. EPAs CRA Guidelines, Part I</td>
<td>T4-C: Public Health Risk &amp; Sources</td>
<td>T4-D: Informing Risk Assessments of Engineered Nanomaterials: Frameworks and Analysis</td>
<td>T4-E: Nano, Synthetic Biology, Animal Feed</td>
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<tr>
<td>5:00-6:00 PM</td>
<td>T5-C Symposium: Risk Analysis: Past, Present and Future, <em>Key Ballroom #3</em></td>
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<td>5:00-6:00 PM</td>
<td>T5-C Symposium: Risk Analysis: Past, Present and Future, <em>Key Ballroom #3</em></td>
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<td>6:00-7:30 PM</td>
<td>Specialty Group Mixers</td>
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<td>6:00-7:30 PM</td>
<td>Specialty Group Mixers</td>
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**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**

<table>
<thead>
<tr>
<th>Time</th>
<th>Key Ballroom #6</th>
<th>Peale A&amp;B</th>
<th>Johnson A</th>
<th>Latrobe</th>
<th>Ruth</th>
<th>Johnson B</th>
</tr>
</thead>
</table>

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

|----------|-----------------------------|-----------------------------------------|------------------------------------------------|----------------------------------------------------------------|--------------------------------|---------------------------------------------|

#### 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)

<table>
<thead>
<tr>
<th>Time</th>
<th>T3-F Symposium: Modernizing the Tools &amp; Approaches to Improve Data Availability &amp; Transparency</th>
<th>T3-G: Information Processing in Risk Communication: A Roundtable Discussion</th>
<th>T3-H Symposium: Total Risk Associated with Chemicals and Materials in the Department of Defense</th>
<th>T3-I: Simulation Techniques and Applications to Explore Uncertainty and Risk</th>
<th>T3-J Symposium: Does Regulation Kill Jobs? Authors of a New Book Discuss the Evidence and Policy Responses</th>
</tr>
</thead>
</table>

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

|----------|-----------------------------------------------------------------|-------------------------------------------------|------------------------------------------------|--------------------------------|--------------------------------|----------------------------------------|

#### 3:30-5:00 PM

<table>
<thead>
<tr>
<th>Time</th>
<th>T5-C Symposium: Risk Analysis: Past, Present and Future, Key Ballroom #3</th>
<th>Specialty Group Mixers</th>
</tr>
</thead>
</table>

**New this year - The National Capitol Area Chapter Mixer - see page 4 for details**
### 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*

### Coffee Break
**Key Ballroom South Foyer**

<table>
<thead>
<tr>
<th>10:30 AM - Noon</th>
<th>Key Ballroom #1</th>
<th>Key Ballroom #2</th>
<th>Key Ballroom #3</th>
<th>Key Ballroom #4</th>
<th>Key Ballroom #5</th>
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<tbody>
<tr>
<td><strong>W2-A</strong></td>
<td>Improving Risk Analysis &amp; Information Quality</td>
<td><strong>W2-B Symposium:</strong> Evaluating Causality in Epidemiological Studies</td>
<td><strong>W2-C:</strong> Emerging Risk Assessment Challenges &amp; Opportunities for the Developing Countries, Part I</td>
<td><strong>W2-D Symposium:</strong> Multi-Criteria Analysis of Foodborne Zoonotic Disease Risks - International Perspectives</td>
<td><strong>W2-E:</strong> Ground &amp; Drinking Waters: New Methods, New Analysis</td>
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<tr>
<td><strong>W3-A Symposium:</strong></td>
<td>Risk Assessment, Policy Learning &amp; Economic Opportunities in Safer Chemical Decision-Making</td>
<td><strong>W3-B Symposium:</strong> Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part I</td>
</tr>
<tr>
<td><strong>W3-C Symposium:</strong></td>
<td>Emerging Risk Assessment Challenges &amp; Opportunities for the Developing Countries, Part II</td>
<td><strong>W3-D:</strong> New Attribution Prioritization of Quantitative Microbial Risk Assessment Methods</td>
</tr>
<tr>
<td><strong>W3-E:</strong></td>
<td>Bioavailability &amp; Biomonitoring</td>
<td><strong>W3-E:</strong> Bioavailability &amp; Biomonitoring</td>
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<th>1:30-3:00 PM</th>
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<tbody>
<tr>
<td><strong>W4-A Symposium:</strong></td>
<td>Characterizing Causality for Policy Decisions</td>
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<tr>
<td><strong>W4-B:</strong></td>
<td>Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part II</td>
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<tr>
<td><strong>W4-C:</strong></td>
<td>Risk Analysis Uncertainty &amp; Decision-Making</td>
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<tr>
<td><strong>W4-D Symp:</strong></td>
<td>Strategic Research Planning for Multiwalled Carbon Nanotubes (MWCNTs): Moving Towards RA that Inform Future MWCNT Risk Mgmt Decisions</td>
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<tr>
<td><strong>W4-E Symposium:</strong></td>
<td>Occupational Exposure Assessment: Risk Characterization and Risk Communication</td>
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<tr>
<th>3:30-5:00 PM</th>
<th>T-Shirt Giveaway - <strong>Registration Area, East Foyer</strong></th>
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<tr>
<td><strong>Stay and receive a free T-Shirt!</strong></td>
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| 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                                      |
| 10:30 AM- Noon | **Key Ballroom #6**  
- W2-G Panel Discussion: Effective Risk Communication  
- 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  
**Peale A&B**  
- W2-G Panel Discussion: Effective Risk Communication  
- 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  
**Johnson A**  
- 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  
**Latrobe**  
- 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  
**Ruth**  
- W2-J: Decision Frameworks for Invasive Species and Water Quality  
- W2-K: Building More Resilient Infrastructure  
**Johnson B**  
- W2-K: Building More Resilient Infrastructure  |
| Noon-1:30 PM | **Plenary Luncheon**, “Risk and Opportunity: Managing Risk for Development” - Key Ballroom #7-12  
| 1:30-3:00 PM | **3:00-3:30 PM** **Coffee Break** - Key Ballroom South Foyer  
**W3-F Symposium**: Global Catastrophic Risk  
**W3-H**: All Hazards Modeling  
**W3-I**: Integrating Human Factors into Engineering Risks  
**W3-J Symposium**: Evaluating the Risk Reduction Outcomes of Regulation  
**W3-K Symposium**: Foundational Issues in Risk Analysis, Part III  
**W3-F Symposium**: Global Catastrophic Risk  
**W3-H**: All Hazards Modeling  
**W3-I**: Integrating Human Factors into Engineering Risks  
**W3-J Symposium**: Evaluating the Risk Reduction Outcomes of Regulation  
**W3-K Symposium**: Foundational Issues in Risk Analysis, Part III  |
| 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  
**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! |
Monday
Technical Program

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

10:30 AM- Noon
Key Ballroom #1
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
Ronholm LR, Bailey EA
USDA Economic Research Service, Technigradient
10:50 am M2-A.2
Metals, mixtures, pathways: systematic review to support risk assessment
von Stackelberg K, Garzy F, 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 S, Haald 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
Joseph A, Sretekaya 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
Mark ME
University of Ottawa
10:50 am M2-B.2
What do government and non-profit stakeholders want to know about nuclear fuel cycle? A semantic network analysis approach
Li N, Brouillard D*, Scheufele DA
University of Wisconsin-Madison
11:10 am M2-B.3
On the utility of criteria-based methods of causal inference
Wool 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 G, Pfister FR, Böhm G
Leibniz University Hannover: University of Bergen
10:50 am M2-C.2
Evolution of weight of evidence in mode of action analysis
von Stackelberg K, Garzy F, Claus-Henn B
Harvard School of Public Health
11:10 am M2-C.3
Involuntary personal, individual and societal risk in relation to risk control policies
Hartfit Division of Nutritional Health
11:30 am M2-C.4
What guides spending on risk mitigation: perceptions or statistics?
Hoss F, Vaidyanathan 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, Schloesser 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, Schwalander SS, Chung RF, Tietly XT, 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, Chin WA
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, Egmond 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
Monday

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.1
Florida: sea level rise and decision analysis: choosing between the devil and the deep blue sea
University of Florida, Mississippi State University, US Army Corps of Engineers

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, Zeckman EM
North Carolina State University

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)
Middlet JK, Stockel DM, Nilsen M, Winkel D, Anderson D, Pals T
Battelle, Department of Homeland Security, Science and Technology Directorate

10:30 AM- Noon
Lawtrobe
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

10:30 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

10:30 AM- Noon

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

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

11:10 am M2-I.3
Robust supply chain investments for disaster preparedness and community resilience: an application to Rio de Janeiro, Brazil
Connolly EB, Lambert JH, Thekdi SA
University of Virginia, University of Richmond

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

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

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
Mojdehberg EM
USDA/OC/GORACBA

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)
Plues DN, Gruau 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

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, Vandenber 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 Arne, 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 T, Marks HM, Coleman ME,
Dundurn D, Hines SA, Comer JE, Tafj 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, Sigrist 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, Luan 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 DRASG  M3-J EBSG  M4-H SDSG
M2-D DRASG  M3-G RSCG  M4-I EJSG, RDSG
M2-H SDASG  M3-I EJSG  M4-J EBASG, Society for
M2-I EJSG  M3-J EBSG  Benefit-Cost Analysis
M3-B DRASG  M4-A DRASG  M3-C DRASG  M4-B DRASG
M3-D MRAASG  M4-E EASG

20
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, Pritch G, Liekkuish V, 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 AB, Dietz T*
University of Arizona

2:10 pm  M3-F.3
New conceptual considerations on dynamic governance - addressing risks in public policy
Klink A, Ren 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
Dunath JL, NCAR and CSU

1:50 pm  M3-G.2
Understanding public responses to hurricane risk messages
Morss RE, Dunath JL, Lazo JK, Dickison K, Lazrus H, Morrow BH
National Center for Atmospheric Research

2:10 pm  M3-G.3
Modeling hurricane preparedness and evacuation intention
Tromba CW, Pook L, Meyer MA, Mirkat H, McNulty B, Grantfist E, Schulert 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, Dunath JL, Lazrus H
University of Washington

Monday

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 current 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 Haggard 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
Larke 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
Lin 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
Oroz M, Salazar D, Chatterjee S, Wei D, Zhou 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, Gateal A
Lawrence Berkeley National Laboratory

2:10 pm  M3-J.3
Evaluating proliferation resistance of small modular nuclear reactors
Gilmore E.A, 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
Monday

3:30 PM - 5:10 PM
Key Ballroom #1
M4-A Symposium: Understanding Human Health Risks from Dietary Arsenic Exposure
Chair: Gail Charney

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

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, Husoy T, Lebrenc C, Thoebold A, Pratt I
EFSA, Italy. Norwegian Scientific Committee for Food Safety, Norway, Council for Research and experimentation in Agriculture, Italy

4:30 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

5:10 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 journal/ investigative reporter

3:30 PM - 5:00 PM
Key Ballroom #3
M4-C Symposium: Foundational Issues in Risk Analysis, Part II
Co-Chairs: Elisabeth Pat-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 of Colorado, United Fresh

3:50 pm  M4-C.2
On black swans and perfect storms
Pat-Cornell ME
Stanford University

4:10 pm  M4-C.3
How often should safety critical valves be tested?
Abramsen EB, Asche F, Gelyani A*, Giukema 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?
Abramsen EB, Asche F, Miarezy 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

4:30 pm  M4-D.3
Application of quantitative microbial risk assessment to address critical and emerging food safety issues
Proudian AE
University of Maryland, College Park

5:00 pm  M4-D.4
Using geospatial risk assessment to forecast produce contamination potential
Oryang D, Fanardel F, Anyamba A, Small J
Food and Drug Administration, Center for Food Safety and Applied Nutrition, NASA

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
Zalezki 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 suspended 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, Lemon E
Drexel University
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Title</th>
<th>Speaker(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3:30 PM</td>
<td>M4-F Symposium: Panel Discussion: Communicating Risk Uncertainty: What Have We Learned and Where Are We Going?</td>
<td>Key Ballroom #6</td>
<td>Key Ballroom #6</td>
<td>Chair: Cindy Jardine</td>
</tr>
<tr>
<td>3:30 PM</td>
<td>M4-F.1 Strategies to engage knowledge users in understanding best practices for communicating about risk characterized by uncertainty</td>
<td>University of Manitoba</td>
<td>Strategies to engage knowledge users in understanding best practices for communicating about risk characterized by uncertainty</td>
<td>Driedger SM, Jardine CG</td>
</tr>
<tr>
<td>3:50 PM</td>
<td>M4-E.2 Communicating environmental health risk uncertainty: a systematic review of the literature</td>
<td>University of Alberta</td>
<td>Communicating environmental health risk uncertainty: a systematic review of the literature</td>
<td>Jardine CG, Driedger SM</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-G Public Response to Natural and Technological Disasters</td>
<td>M4-G.1 Structuring public private partnerships to encourage near-miss reporting</td>
<td>M4-G.2 Risky business engaging the public in policy discourse on sea-level rise and inundation</td>
<td>Driedger SM, Jardine CG, the literature</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-G.3 Do I stay or do I go? Risk attitudes and evacuation decisions during a wildfire event</td>
<td>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</td>
<td>M4-G.5 A longitudinal study of risk perception: the case of Chile</td>
<td>Peale A&amp;B</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-H.2 Public response to the terrorist attacks on Boston</td>
<td>M4-H.3 Public perceptions and trade-offs related to randomized security schedules</td>
<td>M4-H.4 Estimating the probability of extreme low-wind periods in the central United States</td>
<td>Rovins J</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-H.5 DHS’ Risk-Informed Quadrennial Homeland Security Review (QHSR)</td>
<td>M4-H.6 Bayesian multiscale modeling of spatial infrastructure performance predictions</td>
<td>M4-H.7 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</td>
<td>Latrobe</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-I.1 Confronting risks and benefits of energy system improvements in developing communities: the case of Canada’s Northwest Territories</td>
<td>M4-I.2 Estimating the probability of extreme low-wind periods in the central United States</td>
<td>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</td>
<td>Johnson A&amp;B</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>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</td>
<td>M4-I.5 Bayesian multiscale modeling of spatial infrastructure performance predictions</td>
<td>M4-I.6 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</td>
<td>Johns Hopkins University</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-J.1 Barriers to assessing the distribution of regulatory impacts</td>
<td>M4-J.2 Ranking distributions of environmental outcomes across population groups</td>
<td>M4-J.3 Characterizing the distribution of recent and projected air pollution risk among vulnerable and susceptible individuals</td>
<td>Johns Hopkins University</td>
</tr>
<tr>
<td>3:30 PM - 5:10 PM</td>
<td>M4-J.4 Distributive weights: a defense</td>
<td>M4-J.5 Using inequality measures to incorporate environmental justice into regulatory analyses at the US Environmental Protection Agency</td>
<td>M4-J.6 Using inequality measures to incorporate environmental justice into regulatory analyses at the US Environmental Protection Agency</td>
<td>Johns Hopkins University</td>
</tr>
</tbody>
</table>
P.33 Workshop on lessons learned, challenges, and opportunities: the US Endocrine Disruptor Screening Program

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

P.35 Residential and occupational exposure to wood treating operations and risk of non-Hodgkin lymphoma: a meta-analysis
Williams BH, Pierre JS, Glynn ME, Johns LE, Adishkari R, Finley BL.

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

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, RHIWI-WDC.

P.38 Determining detection rates of environmental DNA sampling for monitoring the risk of invasive fish species

P.39 Long-term variability of wind regime in the atmosphere over the Arctic
Agurevsko AO, Kloskhova AV, RHIWI-WDC.

P.40 Metacommunity resilience of the Amazon Tropical Forest facing human and natural stressors

P.41 Design of ecosystem monitoring networks by value of information optimization: experiment in the Amazon

P.42 Recovery estimation model of thermal power plants damaged by complex hazards - case of the 2011 Tohoku-oki Earthquake
Yiyama A, Kajitani Y, Central Research Institute of Electric Power Industry.

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, Fukushima Prefectural University.

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

P.46 Real systematic risk for modeling weighted prices as an asset for decision making
Annya E, Wolk 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.

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

P.49 Proposal of a framework of QAA approaches for predicting the toxicity of chemical substances: a case study on predicting and extrapolating the missing NOEL values
Takeshita J, Gannon M, National Institute of Advanced Industrial Science and Technology (AIST).

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

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

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

P.53 Probabilistic cancer risk assessment for aflatoxin B1 with Bayesian statistics markov chain Monte Carlo Simulation
Lin SY, Chang CS, Chung YC, Chen CC, Wu KY, National Taiwan University.

P.54 Potential impacts of uncertainty in the C8 Science panel exposure assessment for perfluorooctanoate
Anasui Narasiraman R, Shin HM, Vieira VM, Bartell SM, UCI, UCD.

P.55 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, Gannon M, National Institute of Advanced Industrial Science and Technology (AIST).

P.57 Comparative study of risk with nursing work in Japan and China
Maruo Y, Marmo H, Yamane H, Yamaki N, Shizuoka University.

P.58 Environmental attitudes and behaviours of university students: a case of study at a Chilean university
Hedj ME, Mogano E, Cornejo F, Cifuentes LA, Faculty of Engineering, Pontificial Catholic University of Chile.

P.59 DRAGON: a single risk assessment database to promote transparency and data sharing

P.60 Implementing systematic review for chemicals with large databases

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

P.62 Monday Modeling the relationship between post-vaccination hemagglutination inhibition (HI) titer and protection against influenza

P.63 Risk factors identification for Toxoplasma gondii infection in meat products destined for human consumption
P64 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, Cattle CL, MWilliams RM, Singer-Marrick A
Rutgers, The State University of New Jersey

P65 Biological weapons and bioterrorism threat assessment
Jyothikumar V
University of Virginia

P66 Foodborne pathogens in leafy greens: data, predictive models, and quantitative risk assessments
Misra A, Lambertini E, Pradhan AK
University of Maryland College Park

P67 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

P69 Risk Assessments for Listeria monocytogenes and Salmonella spp. in Melons
Wang M, Lambertini E, Micallef SA, Pradhan AK
University of Maryland, College Park

P70 Probabilistic risk assessment with the bayesian statistics markov chain Monte Carlo simulation
Wu KY, Chung YC, Chen CC, Hsiao CH
National Taiwan University

P72 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

P73 Assessing the health risks of dimethylformamide in an occupational setting
Wu CH, Huang YF, Wu KY
National Taiwan University

P74 Attrazine effects on amphibians: is it safe to go back into the water?
Smith DW
Conestoga-Rovers & Associates

P75 Public risk perception towards urban air pollution
Zhu KJ, Xu JH
Peking University

P76 Applying Mental Modeling Technology™ to developing the communications research and analytics roadmap for Census Bureau
Kawasaki DC, Thorne SL, Butte GE, Wroblewski MF
Decision Partners, United States Census Bureau

P77 The constitutive role of communication for coordinated safety behavior in an organization managing high-hazardous processes
Marysinson H, Ladkin D, Denyer D, Pilbeam C
 Cranfield University

P78 Irrational fears for radioactivity: qualitative and quantitative evaluation
Aoyagi M, Kanamori Y, Yoshida A
National Institute for Environmental Studies

P81 Progress in new tools for participatory vulnerability analysis to climate stressors
Webler TW, Tuler SP
Social and Environmental Research Institute

P82 Challenges associated with communicating multidimensional risk data to a diverse set of stakeholders
 Battelle Memorial Institute, Department of Homeland Security Chemical Security Analysis Center

P84 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

P85 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

P86 Risk communication activities of health risks by the Japan EMF information center
Ohkubo C
Japan EMF Information Center

P87 Kids + chemical safety: a tool for educating the public about chemicals
Nane P, Kroner O, Dourson M
Toxicology Excellence for Risk Assessment (TERA)

P88 Effect of information trustworthiness on cancer risk perception after a nuclear disaster
The University of Tokyo, Kitasato University, Waseda University

P89 Investigating “consumer awareness” in evaluating food safety hazards related to beef in Japan
Kamagai Y, Hosono H, Sekizaki T
The University of Tokyo

P90 Effects of changing frequency of heterogeneous stimuli over time on estimation of frequency
Kagihara N
Graduate School of Human Sciences, Osaka University

P91 Rethinking risk data: TERA 2.0
Kroner O, Winterwerb A, Willis AM
Toxicology Excellence for Risk Assessment (TERA)

P92 Managing communication in times of crisis through ambiguity: a framework for crisis communication
Eller EG, Calderon AA
Stephenson Disaster Management Institute, Louisiana State University

P93 Uneven recall and inaccurate risk assessments from reading balanced news articles of controversial risk topics: the role of exemplars and affect
Decon GN
Cornell University

P94 “Magical thinking” in high risk cancer families
Flender LB, Kogel LA, Ugoji A, Au Osakirim D, Gaff C, Jenkins MA
University of Melbourne

P95 Two years since Fukushima accident: Do people still willing to support for the affected area?
Hosono H, Kamagai Y, Sekizaki T
The University of Tokyo

P96 Burgers or tofu? Eating between two worlds: risk information seeking and processing during dietary acculturation
Law H
Marquette University

P97 Exploring the impact of negative emotions on information seeking about radioactive food contamination in Japan after March 11, 2011
Okada T, Inaba T
Hokkaido University

P98 Numeracy and beliefs about the preventability of cancer
Steinbarth JS, Niederdeppe J, Lee T
Cornell University

P99 Alternating hydrologic extremes: risk communication and weather whiplash
Trumino CW, Peek L, Laituri M
Colorado State University

P100 Risk perception of drinking water quality in a US-Mexico Border community
Victory K, Calorena N, Laron D, Reynolds K, Lattara J, Beamor P
University of Arizona, Mariposa County Health Center

P101 Natural disaster cognitive appraisals and disaster preparedness in immigrants and native-born in the Canadian context: a need for psychosocial considerations
Yong AG, Lampe L, Pinsent C, Krenzki D
University of Ottawa
P.102 Public collaboration on a 30-year commitment to assess superfund health outcomes in Butte, Montana
Asherlund WS
Kleinfelder

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

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

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

P.107 Selection of next-generation low global-warming-potential refrigerants by using a risk trade-off framework
Kagihara 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, Morejon 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
Raw V, Francis R
The George Washington University

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

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

Monday

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

P.114 An exposure and health risk assessment of metals in apple juice
Banducci AM, Trierreos B, Belyne I, Monnot A, Derlin K, Madal A
Cardno Chemrisk

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

P.116 Nanoscale risk assessment and uncertainty quantification in atomistic simulations
Wang Y
Georgia Institute of Technology

P.118 Measurement of hand to mouth lead transfer efficiency - a simulation study
Salmet J, Dervin 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, Chang YC, Chen CC, Wu KY
National Taiwan University

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

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

Late Breaking Posters
P.122 A new endophyte risk assessment model
Bromfield KB, Ruev AJ, Astrapatta 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, Shoa JH, Kaiser JM, Dukan 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 JJ, Lee GW, Shin DC
Yonsei University

P.129 Development of exposure guidelines for chronic health effects following acute exposures to TICs
Winkler DJ, Hawkins BE, Rossell 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
Kosilek D
Howard University

P.131 Communicating conservation with labels: experiment on the effectiveness of using IUCN categories for advocacy
Song H, Underhill JC, Schulte 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, Cashman EA
Penn State University

P.133 Quantitative assessment of in vivo toxicological interactions from criteria pollutant mixtures containing oxides of nitrogen
Datsko-Williams L, Young B, Wilkie A, Madden M, Dubois J, Wickers Stanek L, Johns D, Osterling 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
Nakayashi K
Doshisha University

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

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

**P.137** Kinetics and micromechanics associated with crack growth in brittle materials  
*Djouder S, Chabaa M*, Tonati 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  
*Kaiken T, Quadra 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, Stamek LW, Johns D, Owens EO*  
ORISE, US EPA-ORD, US CDC-OH, NIOSH

**P.140** Public risk perception towards urban air pollution  
*Zh 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, SUNY

**P.143** A probabilistic model of U.S. intra-day tap water exposure and its application in PBPK modeling  
*Scholes PM, Isaac K, Sass A, 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  
*Olsson 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  
*Engel KS, Muradii B, Birdwell 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*, Joo 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 R-A, 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™  
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*  
University of Santiago de Compostela

**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*  
Eponex

Poster Platform - Shown During Session Time Listed

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

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**Mark your Calendar!**

**SRA invites you:**

7-10 December 2014  
Denver, Colorado

6-9 December 2015  
Arlington, Virginia

See you there!
Tuesday

8:30 AM - 10:00 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 - 9:30 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, Monis 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  
Animal Health and Veterinary Laboratories Agency, Royal Veterinary College, Istituto Zooprofilassia 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  
AF/VA

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  
NCCEA, USEPA

8:50 AM  
**T1-E.2**  
Toxicity review of technical grade di-nitrotoluene 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  
Jonasovic AS  
ZIRIUS, University of Stuttgart & EU-VRi, 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, Witte J, Wiehe F  
University of Stuttgart, ZIRIUS
Tuesday

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 policies 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 Latrobe

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
Latrobe JF
Innovative Decisions, Inc.

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

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
Lin X, Serrano J-A, 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 Engineering in Technical University of Athens

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

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
Lev N, Nardinelli C, Schick A, Ashley E
US Food and Drug Administration, Office of Management and Budget

9:30 AM T1-J.4
Using a Relative Health Indicator (RHI) metric to estimate health risk reductions in drinking water
Alfredo KA, Roberson JA, Glesby A, Seidel C
American Water Works Association; Jacobs Engineering

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)
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<td>10:30 AM-</td>
<td><strong>T2-A</strong></td>
<td>Key Ballroom #1</td>
<td><strong>Symposium: Cross-Disciplinary Methods for Research Synthesis, Part II</strong></td>
<td>Chair: Lisa Robinson</td>
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<td>10:30 AM</td>
<td><strong>T2-B</strong></td>
<td>Key Ballroom #2</td>
<td><strong>EPA's IRIS: It's A New Program, Part II</strong></td>
<td>Co-Chairs: Kenneth Olden, Richard Becker</td>
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<td><strong>T2-C</strong></td>
<td>Key Ballroom #3</td>
<td><strong>Managing Disasters II</strong></td>
<td>Chair: Myriam Merad</td>
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<td>10:30 AM</td>
<td><strong>T2-D</strong></td>
<td>Key Ballroom #4</td>
<td><strong>Microbial Pathogens in the Environment: Assessment of Public Health Risks</strong></td>
<td>Chair: David Oryang</td>
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<td><strong>T2-E</strong></td>
<td>Key Ballroom #5</td>
<td><strong>Big Data Application: Patterns &amp; Effects</strong></td>
<td>Chair: Seth Guikema</td>
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**T2-A.1**
Strengths and limitations of meta-analytic approaches for developing multi-stressor dose-response functions
Leroy JL, Fabian MP, Peters JL
Boston University

**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
Finn NL, Walker KW, Gilmore E.A*
US Environmental Protection Agency

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

**T2-A.4**
Energy technology expert elicitations: their use in models and what can we learn from workshops and meta-analysis
Anadon LD, Bosetti V, Chai G, Nemet GF, Verdecchia E
Harvard University

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

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

**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

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

**T2-C.1**
Modeling dynamic behavior of complex systems operating crew during accidents
Asgarkhil M, Malek A
Reliability Engineering Program, University of Maryland at College Park

**T2-C.2**
The federal all hazards risk assessment: integrating strategic risk into emergency management planning – a Canadian perspective
Cheung C, Friesen S*
Government of Canada

**T2-C.3**
Modeling public-private partnerships in disaster management—a sequential game with prospect utilities
Guan PQ, Zhuang J
University at Buffalo-SUNY

**T2-C.4**
Assessment of relative potential for Legionella species inhalation exposure from common water uses
Taft SC, Hines S.A, Chappie DJ, Janke RJ, Lindquist H.A, Ernst HS
U.S. Environmental Protection Agency, Battelle Memorial Institute

**T2-C.5**
Monitoring and mapping conditions associated with enteric pathogens using rainfall and satellite vegetation index data
Argamba A, Small J, Oryang D, Finanelli W
NASA Goddard Space Flight Center

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

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

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

**T2-D.4**
Monitoring and mapping conditions associated with enteric pathogens using rainfall and satellite vegetation index data
Argamba A, Small J, Oryang D, Finanelli W
NASA Goddard Space Flight Center

**T2-E.1**
Enriching environmental risk based decision support models with large scale, high resolution population data
StewartRN, Bright E.A, Rose AN, McGinn CW, Bhaduri BL
Oak Ridge National Laboratory

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

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

**T2-E.4**
Geographic and demographic patterns of health risks associated with chemical and non-chemical stressor exposures in a low-income community
Leroy JL, Fabian MP, Peters JL, Kerrick SA
Boston University School of Public Health; Channing Division of Network Medicine, Brigham and Women’s Hospital
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<td>Key Ballroom #6</td>
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<td>10:30 AM- Noon</td>
<td>T2-G Temporal Issues in Risk Communication</td>
<td>Chair: John Besley</td>
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<td>10:30 AM- Noon</td>
<td>T2-J Updates in Ecological Risk Assessment Models</td>
<td>Chair: Katherine von Stackelberg</td>
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<tr>
<td>10:30 AM- Noon</td>
<td>T2-K Assessing Risks &amp; Chemical Regulation</td>
<td>Chair: Ragnar Lofstedt</td>
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<tr>
<td>10:30 AM- Noon</td>
<td>T2-N Updates in Environmental Risk Assessment Models</td>
<td>Chair: Jay Rouse</td>
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<td>11:10 AM</td>
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Tuesday

10:30 AM- Noon  
Key Ballroom #6

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

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

10:50 AM T2-F.2
Social unrests as systemic risks
Reh 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
Sobetula 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, Rubin R
Dialogik non-profit institute for communication and cooperation research

10:30 AM Noon  
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
Zuska 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
Rob S, McComas K*, Decker D, Richard 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?
Rob S, Schubert JP
Cornell University

10:30 AM Noon  
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
Boorman D/A, Gallagher M
Headquarters, US Air Force

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

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

11:30 AM T2-H.4
Rg Y, Reich-Weiser C, Cammarata C
Enviance Inc.

10:30 AM- Noon  
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
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
Kadusha R, Fairbrother A, Kane Drizzell 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-Howson P, Ryb RT
Neptune and Company, Inc.

10:30 AM- Noon  
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
King’s College London

10:50 AM T2-K.2
Distinguishing between risks and hazards: a case study of Bisphenol A
Lemay JC, Prineit RJ, Hixon ML, Goodman JF
Gradient

11:10 AM T2-K.3
Comparing science policy choices in chemical risk assessments across organizations
Hodman 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?
Becker RB
Regulatory Checkbook
Tuesday

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
Veronique A, Mangalam S
Technical Standards and Safety Authority
1:50 PM
T3-A.2
A qualitative safety risk assessment method to construction industry incorporating 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 Moor 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
Paradazesh 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 LJR, Tenasher LK, O'Brien WJ
US Environmental Protection Agency
1:50 PM
T3-B.2
Stakeholder involvement and risk communication in CRA planning, scoping and problem formulation
MacDonald M, Garabedian 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)
Brevierr LE, Tenasher L, Rie G, Wright JM, Neas L
2:30 PM
T3-B.4
Developing effect-based conceptual models for Cumulative Risk Assessment (CRA) that can accommodate diverse stressors
Marzieh C, Kashaba 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
Comments: Thomas Dietz, Robert Goldie, Ragnor Ljustedt, Roger Kasperson
Risk is a part of life. How do we handle uncertainty and deal with potential threats influence decision making throughout our lives. In The Risk Society Revised, 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 recognize 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 Revised 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: Alan Praduman
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, Lavelle RA, Preesholdt TA, Benz S-A, McChesney DG
Division of Animal Foods, Office of Surveillance, Compliance and Enforcement, Center for Veterinary Medicine, Food and Drug Administration
1:50 PM
T3-D.2
FDA risk profile on pathogens and filth in spices
Van Dorem JM, Kleinmeier D, Zioro GC, Parish M, Hamback TS, Gill V, Nofiori O, Westerman PA
US Food and Drug Administration
2:10 PM
T3-D.3
Risk assessment model for Shiga-toxin producing Escherichia coli and Salmonella in ground beef in France: efficiency of different strategies of intervention and sampling beef trim
Morr 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
Funassele WT, Horlzer K
FDA, CFIA

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
DuPont
1:50 PM
T3-E.2
Exposure bands for tiered exposure assessment decision-making
EczemaMobil 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, Dellaro M, DuPont, Syngenta, NIH
2:30 PM
T3-E.4
Water chemicals case study using the RISK21 tiered exposure framework
Dow Corning Corporation
1:30 PM - 3:00 PM
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, Win 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
Hukkinen 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 McManus, Cornell University
Michael Siegrist, ETH Zurich
Janet Yang, State University of New York at Buffalo
Nathan Dickmann, Oregon Health and Science University
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
Scandor 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, Graber 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
Johnson A
T3-I Simulation Techniques and Applications to Explore Uncertainty and Risk
Chair: Daniel Salezar
1:30 PM T3-I.1
Long-term hurricane impact on US power systems
Staid A, Guikema SD, Nategh 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
Latrobe
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
Tuesday

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

3:30 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, Rajaman 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 - 5:00 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, Rée 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  
Rée 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, Réé 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  
Hertzberg RC, Barkhardt EA, MacDonell MM  
Emory University

4:50 PM  
T4-B.5  
Special considerations for risk characterization in a cumulative risk assessment  
Hertzberg RC, Barkhardt EA, MacDonell MM  
Emory University

5:10 PM  
Discussion
Tuesday

3:30 PM - 5:10 PM
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, G E; Linder, R A
Arizona State University

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

4:30 PM T4-F.4
Fighting influenza: should European regulators stockpile?
Bouder, F E; Wey, D; Lafortez, R E
Maastricht University

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

3:30 PM - 5:10 PM
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, Z J; Richert, L N; Soo, 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, Z J; Richert, L; Soo, 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
Kattschreuter, M; Hilverda, M D; 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, K E
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, N A; Jardine, C G; Wong, J
University of Alberta

3:30 PM - 5:10 PM
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
Tunth 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, V R R; Zhuang, J
Georgetown University

4:10 PM T4-H.3
Validation of adversary utility assessment by proxy
John, R Y; Rassoff, J H
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
Mittal, A R; Prieto, C C; Ortiz, D S; Wilison, B; LaTourette, T; Molloy, B W; McKay, S; Willis, H H
RAND Corporation

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

3:30 PM - 5:10 PM
T4-I Risks of Nuclear Power Generation
Chair: Cameron MacKenzie

3:30 PM T4-I.1
Improving nuclear power plant construction cost learning curves by implementing organizational learning tools for risk identification and risk assessment
Talabi, S
Carnegie Mellon University

3:50 PM T4-I.2
Drought forecasting and resilience analysis of nuclear power plants infrastructure
Bekera, B; Francis, R A; Omisacou, O
GWU, ORNL

4:10 PM T4-I.3
Operational reliability of power plants and energy shortage risk in Japan after the March 11 earthquake and tsunami
Kagitani, Y; Yawama, A
Central Research Institute of Electric Power Industry

4:30 PM T4-I.4
Modeling terrorism risk to the air transportation system: an independent assessment of TSA’s risk management analysis tool and associated methods
Mittal, A R; Prieto, C C; Ortiz, D S; Wilison, B; LaTourette, T; Molloy, B W; McKay, S; Willis, H H
RAND Corporation

4:50 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
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, K M; Bertoni, M J
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
Axelrod, D A; Chiu, W; Dockin, C W
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 Washington
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, ERA01, 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**

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Mark your calendar!

Dates for the 2014 and 2015 Annual Meetings:

7-10 December 2014
Denver, Colorado

6-9 December 2015
Arlington, Virginia
Wednesday Sessions Sponsored by Specialty Groups

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<td>W3-A</td>
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<td>EASG, Society for</td>
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**Wednesday**

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, Gillion RJ, Lindsey BD, Ruppert MG  
US Geological Survey

11:10 AM  
**W2-E.3**  
Evaluating public health benefits from reductions in drinking water lead levels at US Schools  
Triantafillidou 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  
Kpone K, Vorbees D, Heijer-Benay W  
Boston University School of Public Health

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  
Hamblot MF, Vandepitte S, Albert A, Gasser C, Kirschwink N, Hasbhunge E, Felber-Bourgeois F, Pastoret PP, Saegerman C*  
University of Liège

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 #3**  
**W2-C Emerging Risk Assessment Challenges & Opportunities for the Developing Countries, Part I**
Chair: Abdulf Kadry, Mohamed Shereif

10:30 AM  
**W2-C.1**  
Toxicological and public health implications of the use of scrap rubber tires for smoking meat in Africa  
University of Georgia Southern

10:50 AM  
**W2-C.2**  
Sources of uncertainty in epidemiologic studies used in risk assessment  
US EPA

11:10 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

11:30 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 #2**  
**W2-B Symposium: Evaluating Causality in Epidemiological Studies**
Co-Chairs: Carol Burns, Mike Wright

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

10:50 AM  
**W2-B.2**  
Evaluating uncertainty due to exposure assessment in epidemiologic studies used in risk assessment  
US EPA

11:10 AM  
**W2-B.3**  
On the future of epidemiologic methods in context of risk assessment  
Baruty M  
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 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, Yaeggy 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  
Abdulkadry 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.
Toxicology Excellence for Risk Assessment
Patterson J, reviews 
Best practices for independent peer review
11:30 AM W2-F .4
Exponent

What can we learn and apply from journal peer review?
11:10 AM W2-F .3
US Environmental Protection Agency
Paulson G, views at EPA

Legal context for US federal agency peer review reviews
10:50 AM W2-F .2
Conrad JW, Jr, presents

Developments in scientific peer review?
10:30 AM W2-F .1
Conrad Law & Policy Counsel

Trends and innovations in independent peer review
Chair: Jacqueline Patterson
Peale A, B
W2-G Panel Discussion: Effective Risk Communication
Chair: Louis Rivers

Speakers Include: Joe Arrau, Roger Kasperson, Robyn Wilson, Cindy Jardine, Lauren Fleitman, Frederic Boudier, Julie Downs, Ragnar Lofstedt, Adam Zarickle 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, 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.

Wednesday

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

10:50 AM- Noon 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

10:30 AM- Noon W2-H.3
Conquering the iron triangle of SME elicitation
Nilsen M, Haikins B, Cove J, Gooding R, Whitmire M
Batelle Memorial Institute, Department of Homeland Security Chemical Security Analysis Center

10:30 AM- Noon W2-H.4
Probabilistic coherence weighting for increasing accuracy of expert judgment
Oksen KC, Karvetzki CW
George Mason University

10:30 AM- Noon 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 Bar, University of Wisconsin-Madison
Frederic Boudier, Maastricht University
David Bussard, US EPA
Robin Canton, Exponent
Louis Anthony Cox Jr, Cox Associates
Adam Finkel, University of Pennsylvania and University of Medicine and Dentistry of New Jersey
Ottewin Renn, University of Stuttgart

10:30-11:30 AM W2-J
Ruth
W2-J Decision Frameworks for Invasive Species and Water Quality
Chair: Patricia Wald-Hopkins

10:30 AM- Noon W2-J .1
Estimating the risk of rabies entry into the state of Hawaii
Fitzpatrick BG, Angelis E, Polidan EF
Tempest Technologies

10:50 AM- Noon W2-J .2
Putting eggs in different baskets: diversification in early planning of invasive species surveillance programs
Yemshanov D, Koch FH, Lu B, Haack RA
Canadian Forest Service, USDA Forest Service, Research Triangle Park, USDA Forest Service, East Lansing

10:30 AM- Noon W2-I

11:30 AM- Noon W2-H

10:30 AM- Noon W2-H

10:50 AM- Noon W2-H

Panelists include:
Vicki Bar, University of Wisconsin-Madison
Frederic Boudier, Maastricht University
David Bussard, US EPA
Robin Canton, Exponent
Louis Anthony Cox Jr, Cox Associates
Adam Finkel, University of Pennsylvania and University of Medicine and Dentistry of New Jersey
Ottewin Renn, University of Stuttgart

11:10 AM- Noon W2-K

10:30 AM- Noon W2-K
W2-K Building More Resilient Infrastructure
Chair: Eva Andrejic

10:30 AM- Noon W2-K .1
Mapping societal functions, flows and dependencies to strengthen community resilience – results from an initial study
Hasel H, Johansson J* Land University

10:50 AM- Noon W2-K .2
Power outage analysis for Hurricane Isaac
Tonn GL, Guikema SD
John Hopkins University

11:10 AM- Noon W2-K .3
Managing risk through resilience and recovery in seaport operations
Salazar DE, Chatterjees
University of Southern California

11:30 AM- Noon W2-K .4
Building a more resilient water sector by assessing and responding to potential vulnerabilities
Baranowski C
US Environmental Protection Agency

Plenary Luncheon
Noon-1:30 PM Key Ballroom

“Risk and Opportunity: Managing Risk for Development”
(Luncheon is included in Registration fee)
1:30 PM - 3:00 PM  
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  
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  
A preliminary characterization of public health risks from industrial operations in Jubail  
Cyprus International Institute, Cyprus University of Technology

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, Lee P  
University of Washington, Seattle, Mt. Sinai Hospital, ENVIRON International Corporation

2:10 PM  
W3-B.3  
Mode of action studies on inhaled formaldehyde causing leukemia  
University of North Carolina at Chapel Hill, Massachusetts Institute of Technology

2:30 PM  
W3-B.4  
Pharmacokinetics of formaldehyde and the impact of endogenous levels on uptake  
Clewell HJ, Andersen M, Gentry PR  
The Hamner Institutes for Health Sciences, ENVIRON International Corporation

1:30 PM - 3:00 PM  
W3-C Symposium: Emerging Risk Assessment Challenges & Opportunities for the Developing Countries, Part II  
Co-Chairs: Abdal Kadry, Mohamed Sherif

1:30 PM  
W3-C.1  
Using time series analysis to investigate food causes of foodborne illnesses  
Hoffmann S.A, Ashton L, Berck P, Todd J  
USDA Economic Research Service, University of California, Berkeley

1:50 PM  
W3-C.2  
FDAs 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-C.3  
Prioritization of roof-harvested rainwater pathogens to guide treatment and use  
Hamilton KH, Haas CN  
Drexel University

2:30 PM  
W3-C.4  
Unveiling the spatio-temporal cholera outbreak in Cameroon: a model for public health engineering  
Evers EG, Chardon JE  
National Institute for Public Health and the Environment

1:30 PM - 3:00 PM  
W3-D New Attributionary Prioritization of Quantitative Microbial Risk Assessment Methods  
Chair: Moez Sanaa

1:30 PM  
W3-D.1  
Application of lead and arsenic bioavailability in human health risk assessment for a sediment site  
Lin CL, Loke NL  
CDM Smith

1:50 PM  
W3-D.2  
Evaluating the risk of human exposure to environmental PCDD/Fs using biomonitoring  
Augusto S, Pinho P, Botelho MJ, Palma-Oliveira JM*, Brumquinho C  
University of Lisbon

2:10 PM  
W3-D.3  
Evaluation of population-based biomonitoring data for risk assessment: an environmental-wide association study approach  
Le HQ, Lander DR, Starks SE, Kroekmann KH, Symons JM  
DuPont Epidemiology Program, DuPont Haskell Global Centers for Health and Environmental Sciences

2:30 PM  
W3-D.4  
Are epidemiological associations of higher chemical concentrations in blood with health effects meaningful?  
Clewell HJ, Yoon M, Wu H, Verner M-A, Langneker MP  
The Hamner Institutes for Health Sciences, Harvard Medical School, Boston
Wednesday

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 communication 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
Baun S
Global Catastrophic Risk Institute

2:50 PM W3-F.5
Christian apocalyptic literature in theological scholarship & the ‘prepper’ movement
Fusco MP
Global Catastrophic 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, Sun M, Park G, 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: Raoul 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
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, Baldrus S
Industrial Economics Inc, Harvard 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

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
Vissoures C, Gunger 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, Abrahamson EB, Schiek 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
Vandenbarg J, Cagiano V, Owens EO, Cooper G, Ross M
National Center for Environmental Assessment, US Environmental Protection Agency, Research Triangle Park, and Washington, DC

3:30 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, Rhyneberg LR

4:30 PM  W4-A.4
Transparently implementing the causal framework in the EPA NAAQS review
Patel M, Owens EO, Karran E, Ross M
National Center for Environmental Assessment, US Environmental Protection Agency

3:30 PM - 5:10 PM

Key Ballroom #2

W4-B Integration of the Science Necessary for Assessing Potential Carcinogenicity of Formaldehyde, Part II
Co-Chairs: Joseph Rodricks, Paolo Boffetta

3:30 PM  W4-B.1
Relevance of genetic changes in circulating blood cells following formaldehyde exposure
Albertini RJ, Thruman 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, Kerzich PJ
Fudan University, China, Gippsland, 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, Munde 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

Wednesday

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 bioscience security continuum.
University of Sydney, Australia, Charles Sturt University, Australia, Avet 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
Yomelhanov AM
GSw State University

4:10 PM  W4-C.3
A decision support framework for developing regional energy strategies
Besette 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, Ramacottetti FG, 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, Mared 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, Grigir K, Mone Y, Hendren CO, Beadrie C, Davis JM
US EPA

3:40 PM  W4-D.2
Toxicological and health effects assessment efforts for MWCNTs in NCNHIR Consortium
Nadagur S
NIEHS

3:50 PM  W4-D.3
Risk assessment and management of multwalled 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 multiwalled carbon nanotubes (MWCNTs): research to inform future risk analyses and risk management
Sayes CM
RTI International

2:20 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!
Wednesday

3:30 PM - 5:00 PM
Key Ballroom #3
W4-D Symposium: Risk Characterization and Risk Communication
Chair: Frank Hearl

3:30 PM W4-D.1
Global Risk Governance for Genome Editing
Kuzma J
North Carolina State University

3:50 PM W4-D.2
Minimizing global catastrophic and existential risks from emerging technologies through international law
Wilson GS
Global Catastrophic Risk Institute

4:10 PM W4-D.3
Past the threshold for existential risks: balancing existential risk uncertainty and governance
Yom BE, Stiefel D, Feldman D
University of Tennessee-Knoxville

4:30 PM W4-D.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-D.5
Estimates of legionnaires disease risk from whirlpool spas
Armstrong TW
TW/4HR Occupational Hygiene Consulting, LLC.

3:30 PM - 5:00 PM
Key Ballroom #6
W4-E Symposium: Global Risk Governance
Chair: Seth Baum

3:30 PM W4-E.1
Global Risk Governance for Genome Editing
Kuzma J
North Carolina State University

3:50 PM W4-E.2
Minimizing global catastrophic and existential risks from emerging technologies through international law
Wilson GS
Global Catastrophic Risk Institute

4:10 PM W4-E.3
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4:50 PM W4-E.5
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Armstrong TW
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