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Society For Risk Analysis Annual Meeting
2012 Final Program

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Meeting Highlights

Poster Reception!
This year’s meeting will feature a poster reception with food and drinks in the Grand Ballroom, on Monday evening from 6:00 to 8:00 pm. Posters set up starts at noon, 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!

Meeting Events! - All events take place at the Hyatt Regency San Francisco.
Start with the opening reception on Sunday (9 December, 6:00-7:30 PM, Cash Bar), and continue to the closing Die Hard Risk Analyst - DHRA - T-Shirt Giveaway on Wednesday (12 December, 5:00-6:00 PM). The meeting includes three Plenary Sessions, and lunch on all three days.

NEW! Business Networking Breakfast - Tuesday, December 11, 7:30am-8:15am, Marina Room. All those interested in making business connections while attending SRA, come prepared with your 30 second commercial. Each participant will have 30 seconds to stand and let others know what type of business they’re in, who their prospects are, and how others present can help them connect the dots. Make YOUR SRA experience really pay off! A continental breakfast will be available. Bring your business cards!

Oral Presenter’s Reminder
If you are an Oral Presenter at the meeting, don’t forget to upload your presentation in the Speaker Ready Room (Plaza Room) at least 24 hrs 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.

Hyatt Regency San Francisco
5 Embarcadero Center
San Francisco, CA 94111
415-788-1234; Fax: 415-398-2567
**SRA 2012 Specialty Group Award Winners**

**Decision Analysis & Risk**
- Douglas Bessette
- Danail Hristozov

**Dose-Response**
- Casey Ta

**Ecological Risk Assessment**
- Heitor Duarte

**Economics and Benefits Analysis**
- Magdalene Matthews

**Emerging Nanoscale Materials**
- Christian Beaudrie

**Engineering and Infrastructure**
- Stephen Rose

**Microbial Risk Analysis**
- Hao Pang
- Jory Wahlen

**Risk and Development**
- John Coles

**Risk Policy & Law**
- Tsung-ling Lee
- Reut Snir

**Security & Defense**
- David Blum

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**SRA 2012 Student & International Award Winners**

- Amlot, Richard
- Andrijcic, Eva
- Bessette, Douglas
- Blazquez, Carola
- Cabrera, Camila
- Catalano, Marie
- Cheadle, Jessica
- Christian, Rochelle
- Chua, Yi Ting
- Cisternas, Pamela
- Coles, John
- Cummings, Christopher
- DeMichelis, Sandra
- Demski, Christina
- du Plessis, Elsabe
- El Yahchouchy, Rana
- Empereur-Bissonet, Pascal
- Ertem, Mehmet
- Fan, Gang-Zhi
- Gottschalk, Padri
- Guivant, Julia
- Guo, Zhenyu
- Hajbagheri, Mansour
- Hamilton, Michael
- Hristozov, Danail
- Huang, Tailin
- Jamshidi, Taher
- Jiao, Wan
- Kenney, Lisa
- Kim, Hye Kyung
- Kim, Se-Jin
- Kowal, Stephanie
- Lapuente, Pilar
- Lu, Connie
- Matthews, Magdalene
- Neela, Guha
- Nicol, Anne-Marie
- Pang, Hao
- Parra, Lina
- Pica Tellez, Andres
- Poortvliet, Marijn
- Poulizac, Claire
- Rajan, Ravi
- Retchless, David
- Rodriguez, Sergio
- Roh, Sungjong
- Rolfe-Redding, Justin
- Romero, Andres
- Rose, Stephen
- Sadeghi, Farzad
- Salsal, Mohammad
- Schetula, Viola
- Shan, Xiaojun
- Snir, Reut
- Srdjevic, Bojan
- Staid, Andrea
- Strappa, Valentina
- Ta, Casey
- Tatham, Elisa
- Thomas, Merryn
- Turner, Amalia
- Wagner, Charlotte
- Wahlen, Jory
- Wang, Wen
- Wang, Hui
- Way, Dominic
- Welburn, Jonathan
- Yao, Jiayun
- Zwickel, Adam
Meeting Events and Highlights

**Registration Hours**
Hyatt Regency San Francisco - Grand Ballroom Foyer
- Sunday 9 December 4:00 - 6:30 PM
- Monday 10 December 7:00 AM - 5:00 PM
- Tuesday 11 December 8:00 AM - 5:00 PM
- Wednesday 12 December 8:00 AM - 4:00 PM

**Conference Events, Committee Meetings**

**Sunday 9 December**
- SRA Council Meeting
  Noon–5:00 PM - Regency Room
- SRA Welcome Reception – (Cash Bar)
  6:00–7:30 PM - Atrium 2-4

**Monday 10 December**
- New Member and Fellows Networking & Breakfast
  7:00-8:00 AM - Atrium 3-5
  All SRA Fellows as well as 2012 and 2013 New Members (badges with a New Member ribbon) are welcome to attend.
- Regional Organizations/Chapters Chairs Breakfast
  7:30-8:30 AM - Marina
- Conferences and Workshops Committee
  7:30-8:30 AM - Board Room A
- Opening Plenary Session
  8:30-10:00 AM - Grand Ballroom

**Tuesday 11 December**
- Grad Student Breakfast
  7:00-8:00 AM - Golden Gate
- Business Networking Breakfast
  7:30-8:15 AM - Marina Room
- Specialty Group Chairs Breakfast
  7:30-8:30 AM - Pacific Concourse H
- Communications Committee
  7:30-8:30 AM - Board Room A
- Plenary Session
  8:30-10:00 AM - Grand Ballroom
- SRA Awards Luncheon and Business Meeting
  Noon-1:30 PM - Grand Ballroom
- Career Fair & Young Professionals Mixer - (Cash Bar)
  5:00-6:30 PM - Grand Ballroom Foyer
- SRA Council Meeting
  6:30-10:00 PM - Regency Room

**Wednesday 12 December**
- Audit Committee
  7:00-8:00 AM - Board Room B
- Education Committee Breakfast
  7:00-8:00 AM - Marina Room
- Website Redesign Subcommittee: SG and RO Website Development Training
  7:30-8:30 AM - Pacific Concourse I
- Plenary Luncheon
  Noon-1:30 PM - Grand Ballroom
- T-Shirt Giveaway
  Be a Die Hard Risk Analyst - Stay until the end of the sessions and receive a t-shirt
  5:00–6:00 PM, Grand Ballroom Foyer
Specialty Group Meetings

12:05-1:30 PM
All Specialty Group Meetings will take place during lunch time on Monday 10 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, Pacific Concourse L
- Economics & Benefits Analysis, Pacific Concourse M
- Security & Defense, Pacific Concourse N
- Risk Communication, Pacific Concourse O

12:35-1:00 pm
- Ecological Risk Assessment, Pacific Concourse L
- Exposure Assessment, Pacific Concourse M
- Risk, Policy & Law, Pacific Concourse N
- Risk & Development, Pacific Concourse O

1:05-1:30 pm
- Decision Analysis & Risk, Pacific Concourse L
- Emerging Nanoscale Materials, Pacific Concourse M
- Engineering & Infrastructure, Pacific Concourse N
- Microbial Risk Analysis, Pacific Concourse O

Specialty Group Mixers

Tuesday 11 December
6:00 - 7:30 PM
DRSG, MRASG, EASG - Hospitality Room
SDSG, DARS, EISG - Atrium 4
ERASG, RCSG - Atrium 2
EBASG, RPLSG, ENMSG, RDSG - Atrium 3

Exhibition - Grand Ballroom Foyer
Monday 10 December ........................................... 3:00 - 8:00 PM
Poster Reception ............................................... 6:00 - 8:00 PM
Tuesday 11 December ................................. 9:45 AM - 4:00 PM
Wednesday 12 December .............................. 9:45 AM - Noon

Exhibitors

Exponent
1800 Diagonal Road, Suite 300
Alexandria, VA 22314
571-227-7229; Fax: 571-227-7299
www.exponent.com

Exponent is a scientific and engineering consulting firm that provides solutions to complex technical problems. Our multidisciplinary team of scientists, engineers, physicians, and business consultants performs in-depth research and analysis in more than 90 technical disciplines. Exponent operates in 20 regional offices and 5 international locations.

Gower Books
110 Cherry Street, Suite 3-1
Burlington, VT 05401
802-865-7641; Fax: 802-865-7847
www.gower.com

Gower is recognized as one of the world’s leading publishers of specialist business and management books and resources. Our publishing program covers many of the main business processes and functions and we are continuously developing new titles. Founded in 1967, Gower is an independent, global publisher.

ICF International
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.

Key to Specialty Group Designations

DARS = Decision Analysis and Risk
DRSG = Dose-Response
EASG = Exposure Assessment
EBASG = Economics & Benefits Analysis
EISG = Engineering and Infrastructure
ENMSG = Emerging Nanoscale Materials
ERASG = Ecological Risk Assessment
MRASG = Microbial Risk
RCSG = Risk Communication
RDSG = Risk & Development
RPLSG = Risk Policy and Law
SDSG = Security and Defense
Toxicology Excellence for Risk Assessment (TERA)  
Booth 1  
2300 Montana Avenue, Suite 409  
Cincinnati, OH 45211  
513-542-7475; FAX: 513-542-8674  
www.tera.org  

TERA is a non-profit risk assessment organization dedicated to the best use of toxicity information for risk assessment. Information on key TERA projects and resources will be available, including risk databases (ITER, RiskIE) and training, the Alliance for Risk Assessment, assessments, and peer review.

US Coast Guard  
Booth 5  
USCG's risk model aims to optimize deployment of 50,000 personnel and 2,200 sea/aircraft to ensure the safety, security, and stewardship of America's maritime interests. An Armed Force under the Department of Homeland Security, USCG is resourcing a booth to increase dialogue on mission requirements and personnel needs to improve mission effectiveness.

US Environmental Protection Agency (US EPA)  
Booth 3  
1200 Pennsylvania Avenue NW  
Maildrop 8601P  
Washington, DC 20460  
703-347-8545  
www.usepa.org  

EPA publications and information about EPA - Office of Research and Development.

DHHS/FDA/ORA/SAN-DO & JIFSAN  
Booth 7  
Joint Institute for Food Safety and Applied Nutrition (JIFSAN)  
www.jifsan.umd.edu; http://foodrisk.org/  

JIFSAN was founded in 1996 by the University of Maryland and US Food & Drug Administration. Its mission is to advance sound strategies to improve public health, food safety, and applied nutrition using risk analysis principles through collaborative research, education, and outreach programs. JIFSAN conducts trainings and research worldwide and hosts foodrisk.org, the only comprehensive on-line resource for food safety risk analysis. Information on training and research programs and new web-based tools (iRISK, FCID, ICRA) currently found foodrisk.org will be available.

US Food & Drug Administration, San Francisco District Office (SAN-DO)  
www.fda.gov  

FDA San Francisco District Laboratory is an A2LA and ISO 17205 accredited laboratory with the mission of protecting the public health through the analysis of FDA regulated products such as food, drugs, devices, and cosmetics. The laboratory provides analytical support in areas of organoleptic, microbiological, elemental, product sterility, and food chemistry (e.g. colors and food additives). Key specialization areas include our Problem Solving Lab for unknown contaminants, our Virology Center of Excellence and Sterility Suite, and our capabilities in Select Agent analysis. We also conduct research in methods development and validation for foodborne, drug, and cosmetic contamination. A major strength is our ability to develop cooperative collaborations and partnerships with other sister agencies focused on Public Health and Food Safety. As part of the Food Emergency Response Network (FERN) the laboratory is a key player in developing increased capacity for rapid sample analyses in case of a national disaster or terrorist event.

...Back by Popular Demand...Back by Popular Demand...Back by Popular Demand...  
Sponsored in part by: Geosyntec and EPA  

SRA Career Opportunities, Tuesday, 5:00-6:30 pm - Grand Ballroom Foyer  

Finding the right job. Continuing education. Work-force training. Career advancement. It’s a giant puzzle, but the career fair at this year's SRA Annual Meeting can help you put all the pieces together. During this event, job seekers can network with employers looking to fill vacancies as well as participate in on-site interviews. This will be your opportunity to show off your first impressions, resumes and get one-on-one time with local recruiters and employment resources.

Come dressed professionally, and bring along plenty of résumés and a winning attitude. Remember, this is an employer’s first impression of you, so treat this event like you would a job interview.

If you are a Student or Young Professional, join us for the Mixer while doing some networking at the Career Fair!
Workshops - Sunday 9 December

Full Day Workshops – SUNDAY 8:30 am – 5:30 pm
(Lunch is on your own, 12:30-1:30 pm)
Workshop 1: Benchmark Dose Modeling (BMD) Analysis – an Introduction to BMD Methods and Application of EPA's Benchmark Dose Software
Instructors: J. Allen Davis, MSPH, US Environmental Protection Agency (EPA); Jeff Gift, Ph.D. (EPA); Jay Zhao, MD, MPH, Ph.D. (EPA)
Onsite Registration $350

This workshop will provide participants with interactive training on the use of the U.S. EPA's Benchmark Dose Software (BMDS) and its application to risk assessment. The course will provide an overview of the BMD process, including determination of data adequacy, model fitting and comparison, and selection of a benchmark response level. This workshop will cover all BMD models available in BMDS 2.2 —including the new MS-COMBO model, which calculates multi-tumor composite risk values. Instruction will also be given in regard to new features that have been implemented in version 2.2.

This interactive training workshop will consist of morning and afternoon sessions. The morning session will include instructor presentations covering the basic science and theory of BMD modeling, and is intended for those with no prior experience in BMD modeling. The afternoon session will expand upon the morning session and will consist of a demonstration of EPA's BMDS 2.2 through individual and group class modeling exercises. Questions and critical discussions of presentation material and class activities are highly encouraged.

Participants planning to attend the afternoon session need to bring their own laptops to the workshop with BMDS 2.2 installed (with necessary administrative rights). The latest version of the software can be found at: http://epa.gov/ncea/bmds/. To ensure students receive the maximum benefit from participating in the workshop, it is recommended that they examine the online training and tutorial materials prior to the workshop. Training and tutorial materials can be found at: http://www.epa.gov/ncea/bmds/training/index.html.

Workshop 2: Ecological Risk Assessment and Management – Processes and Applications
Organizer: Mala Pattanayek, MS, ARCADIS
Instructors: Ned Black, PhD, USEPA; Bridgette DeShields, MS, ARCADIS; Mala Pattanayek, MS, ARCADIS; Judy Nedoff, MS, ARCADIS
Onsite Registration $300

This workshop will cover the science and practice of Ecological Risk Assessment (ERA). The content will include case study exercises to provide hands-on experience for participants in weight-of-evidence ERA and the principles of risk management. While the focus will be primarily on chemical contaminants, multi-stressor issues will also be covered. This workshop is suitable for participants with little ERA experience, as well as those with a moderate level of understanding. The course will be composed of two modules: 1) a broad overview of the ERA process/framework and an introduction to core scientific principles and disciplines, including basic systems ecology, toxicology, population biology, fate and transport, empirical and applied modeling, data collection (design and data quality objectives), and regulatory policy and guidelines, and 2) application of the ERA process to current global environmental issues. Case studies will be used to frame discussion on the broad application of the ERA framework to address environmental issues, and risk management decision-making, the overall goal being to demonstrate how the ERA process/frameworks can be used to evaluate a broad array of environmental issues from localized contaminated sites to global issues such as climate change. Materials will be provided to course participants for follow-up study, including: suggested reading lists (including a focused list of publications on the subject matter), links to relevant internet sites, terminology/definition sheets, and electronic versions of key ERA regulations, guidance documents, and related materials, as well as workshop slides on a USB drive.
Workshop 3: Application of Web-based Risk Assessment Information System (RAIS) and Free Spatial Analysis and Decision Assistance (SADA) Software
Organizer: Debra Stewart
Instructors: Debra Stewart, University of Tennessee, Oak Ridge National Laboratory; Fred Dolislager, University of Tennessee, Oak Ridge National Laboratory; Leslie Galloway, University of Tennessee, Oak Ridge National Laboratory; Robert Stewart, Oak Ridge National Laboratory
Onsite Registration $350

The first half of this workshop is interactive training on the Risk Assessment Information System (RAIS). The RAIS is a web-based system that provides risk tools and supplies information for both chemicals and radionuclides for human health and ecological risk assessment. Taking advantage of searchable and executable databases, menu-driven queries, and data downloads using the latest web technologies, the RAIS offers essential tools and information for the risk assessment process established by the U.S. EPA and can be tailored to meet site-specific needs for another government agency, the public, or an international user. The course will provide a general overview of the risk assessment process and introduce freely available RAIS tools, including toxicity values, PRGs, forward risk calculations, ecological screening benchmarks, and radionuclide decay. More information can be found at http://rais.ornl.gov.

The second half of the workshop will present Spatial Analysis and Decision Assistance (SADA). SADA is free software that incorporates tools from environmental assessment fields into an effective problem solving environment. These tools include integrated models for visualization, geospatial analysis, statistical analysis, human health risk assessment, ecological risk assessment, cost/benefit analysis, sampling design, and decision analysis. Instruction will be hands-on and include case studies and exercises. Participants are encouraged to bring their own laptops with wireless internet capability. For SADA, participants are encouraged to visit the SADA website (http://www.tiem.utk.edu/~sada/index.shtml) and download the latest copy of SADA prior to the workshop. Approximately 80% of this workshop will be focused on human health risk assessment and 20% on ecological risk assessment.

Workshop 7: Probabilistic Risk Analysis with Hardly any Data
Instructors: Scott Ferson, Ph.D., Applied Biomathematics and Jack Siegrist, Ph.D., Rutgers University
Onsite Registration $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 10: Cumulative Risk Assessment: Addressing Combined Environmental Stressors
Organizer: Linda K. Tenschler, MS, US Environmental Protection Agency (EPA)
Instructors: Amanda Evans, MSPH, Oak Ridge Institute for Science and Education; Richard C. Hertzberg, PhD, Biomathematics Consulting; Margaret MacDonell, Ph.D., Argonne National Laboratory; Moiz Mumtaz, Ph.D., Agency for Toxic Substances and Disease Registry; Glenn E. Rice, ScD, EPA; Jane Ellen Simmons, Ph.D., EPA; J. Michael Wright, Ph.D., EPA
Onsite Registration $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 12: Use of Expert Elicitation to Inform Decisionmaking**

**Organizer: Aylin Sertkaya**

**Instructors: Aylin Sertkaya, Eastern Research Group Inc. (ERG); Cristina McLaughlin, Food and Drug Administration**

**Onsite Registration $350**

Risk analysis often requires making inferences or estimating parameter values from studies that contain inconsistent or conflicting results or address dissimilar contexts. Such inferences or estimates should be consistent with the weight of evidence. Deciding whether and how to combine information from multiple studies requires thinking carefully about the nature of the problem to be addressed and the characteristics of the available evidence. In the first part of the workshop, we will introduce the range of methods for evaluating and combining evidence and explore three prominent approaches in detail: systematic review, meta-analysis, and expert elicitation. These methods are used widely in the social sciences and medicine as well as in risk assessment. Each begins with a careful review of the research literature, but then the approaches diverge. Systematic review involves a largely qualitative evaluation of available studies against established criteria to identify those that are most appropriate for use in a particular context. Meta-analysis involves selecting studies from the available literature using formal criteria and then using statistical models to calculate summary estimates and explore sources of variation across studies. Expert elicitation uses a structured process to select experts who provide subjective probability distributions that characterize their knowledge about a quantity. The second part of the workshop will focus more on expert judgment elicitation topics ranging from recruitment, elicitation protocol design, different elicitation techniques (e.g., individual elicitations, Delphi method, nominal group technique, etc.) to aggregation methods for combining opinions of multiple individuals and quantifying uncertainty. The role of expert judgment elicitation and its limitations, problems, and risks in policy analysis will also be addressed. The class will conclude with a hands-on exercise designed to better convey challenges with expert calibration.

**Half Day Workshops – SUNDAY 8:00 am – Noon**

**Workshop 1A: Benchmark Dose Modeling (BMD) Analysis – an Introduction to BMD Methods and Application of EPA’s Benchmark Dose Software**

**Instructors: J. Allen Davis, MSPH, US Environmental Protection Agency (EPA); Jeff Gift, Ph.D.(EPA); Jay Zhao, MD, MPH, Ph.D. (EPA)**

**Onsite Registration $225**

See Workshop 1 for description.

**Workshop 5: Simplicity in Biocomplexity: Influence Diagrams for Modeling Human-Environment Interactions**

**Organizer: Matteo Convertino**

**Instructor: Matteo Convertino, Risk and Decision Science Team, Department of Agricultural and Biological Engineering, University of Florida, Environmental Lab, ERDC USACE**

**Onsite Registration $275**

This 4-hour workshop will cover the fundamental aspects of influence diagrams for incorporating results of decision models, process-based models, and monitoring data in order to propose solutions of complex issues about human and natural systems. The multifaceted problems of our society require more and more the integration of basic-science (e.g. modeling predictions), stakeholder preferences and decisions, and real time data.
Using an example of a large restoration effort for the Everglades, the workshop will explain the ability of influence diagrams to incorporate spatial and temporal complexities of complex systems into a mental model of ideal environmental managers. The theoretical foundations of influence diagrams will be mentioned; however, the focus will be on the application of these probabilistic decision models. The workshop will start by introducing elementary Bayesian inference techniques (automated and non-automated) for assessing the probabilistic structure of input variables of influence diagrams and of their uncertainty. The assessment of the conditional probabilities among variables and the structuring of the decision problem will be central topics of this workshop. The value of information in Bayesian networks and influence diagrams will be shown as a potential instrument to guide policy-making. A global sensitivity and uncertainty analysis will be explained in order to quantify the importance of each variable and of their uncertainties in the magnitude and uncertainty of the output of influence diagrams. The workshop will address also the role of visualization of influence diagram results. This is important in order to improve the communication of risk and decisions to stakeholders, the general public, and the scientific community at large.

The workshop built on the concepts of transdisciplinarity, system theory and quantitative decision analysis is certainly useful for policy makers that aspire to have a more quantitative preparation about the best use of models in their everyday practice, to basic-scientists who want to find applications of basic science to real problems, and for students (from engineering, life sciences, to management) that are new to these topics. Because of the application focus of the workshop, participation is encouraged for people who do not have background in these topics. All the topics will be introduced in a very interactive way by examples built in Matlab. Participants will receive an electronic copy of the slides and numerical examples used during the workshop (Dropbox folder shared among participants).

Workshop 8: Project Risk Management
Organizer: Ovidiu Cretu
Instructors: Ovidiu Cretu and Vlad Cretu, Cretu Group LLC; Jong-Know Lim, Infrastructure Asset Management Co., LLC
Onsite Registration $245

The workshop will focus on the risk management process as an integral part of project management. The instructors will present the Risk Management Cycle, including the fundamentals of integrated project cost and schedule risk assessment, and compare deterministic and probabilistic approaches. The notion of base estimate (for the cost and schedule) is introduced and then the instructors will elaborate on defining the base uncertainty as a combination between base variability and market conditions. Briefly the instructors will present the ISO 31000 definition of risk followed by the dilemma of “How many risks should be assessed?” Two project case studies will be presented to exemplify the controversy between “Professional Sophistication” and “Keep It Short and Simple.” The instructors will cover the characteristics of risk, including (1) probability of occurrence, (2) consequences, and (3) conditionality (dependency and correlation). Risk evaluation tools, including Monte Carlo analysis, Tornado diagrams, risk matrices, and risk maps also will be discussed. The workshop will conclude with risk management plans and tips for success.

Half Day Workshops – SUNDAY 1:00 – 5:00 pm
Workshop 1B: Benchmark Dose Modeling (BMD) Analysis – an Introduction to BMD Methods and Application of EPA’s Benchmark Dose Software
Instructors: J. Allen Davis, MSPH, US Environmental Protection Agency (EPA); Jeff Gift, Ph.D (EPA); Jay Zhao, MD, MPH, Ph.D. (EPA)
Onsite Registration $225

See Workshop 1 for description.

Organizer: Branden B. Johnson
Instructors: Branden B. Johnson, Decision Research, Inc.; Darrell W. Donahue, Maine Maritime Academy
Onsite Registration $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 6: Training Resources for Research Ethics and Cultural Competence in Risk Assessment**  
Organizer: Dianne Quigley  
Instructor: Dianne Quigley, PhD, Adjunct Assistant Professor, Center for Environmental Studies, Brown University  
**Onsite Registration $115**

Risk assessment research recently has been involving more community groups, particularly racially/culturally-diverse groups. Additionally, IRBs are requiring human subjects protections for interviews, surveys, oral histories, etc. Training in human subjects protections is needed both for individual human subjects protections and for respecting individuals as members of place-based communities. Additionally, cultural groups within local communities in the US and internationally have particular histories and traditions, group processes and research experiences that are important to learn about from case study and applied ethics articles. These group conditions are frequently critical contextual conditions to consider in the design of risk assessments.

At this workshop, we will review basic human subjects protections, new research protections for place-based communities and cultural groups, cultural competence, environmental justice and ethical approaches to justice. Training resources will be shared with interested environmental studies faculty and graduate students including: training curriculum for graduate student mentoring programs, a preview of a faculty/student mentoring web-based resources (MyCourses and Blackboard), and samples of case studies and digital training slides. Interested faculty and graduate students are invited to attend this discussion to take advantage of these resources and to offer ways that they could bring their expertise and field experience to this collective research ethics/cultural competence training efforts.

**Workshop 11: An Overview of the Science, Economics and Policy on Climate Change**  
Organizer: Elisabeth Gilmore  
Instructors: Klaus Keller, Pennsylvania State University; Katherine Calvin, Joint Global Change Research Institute (JGCRI), Pacific Northwest National Laboratory/University of Maryland; Arden Rowell, University of Illinois College of Law  
**Onsite Registration $325**

The far-reaching implications of climate change ensure that it will remain an important policy issue. This workshop aims to provide participants with an overview of climate change science, economics and policy. First, we provide an overview of the science and risks of climate change, which is designed to be accessible to non-scientists. Second, we provide an assessment of the economics of mitigation and damages. This will include an introduction to integrated assessment models (IAMs), which played a critical role in establishing the US government’s social cost of carbon (SCC). Third, we discuss climate policy, focusing on the evolution of US domestic policy through the Clean Air Act and the courts. While this workshop will not directly address expectations of future domestic or international climate policy, participants should be able to better analyze and critique the effect of future developments on socio-economic systems and climate risks.

**Workshop - Thursday 13 December**

**Full Day Workshop – THURSDAY**  
8:30 am – 5:30 pm  
**Workshop 13: Probabilistic Risk Analysis with Hardly any Data**  
Organizers: Scott Ferson, Applied Biomathematics and Jack Siegrist, Rutgers University  
Instructors: Scott Ferson, Ph.D., Applied Biomathematics and Jack Siegrist, Ph.D., Rutgers University  
**Onsite Registration $325**  
See description for Workshop 7.
**Plenary Sessions**

All Plenary Sessions will be held in the Hyatt Regency San Francisco

**Opening Plenary Session**

**Monday 10 December 8:30 – 10:00 AM, Grand Ballroom**

“Advancing Risk Regulation: The UK’s Review of Health and Safety Rules”

*Panelists:* Ragnar Löfstedt, *Professor and Director of the King’s Centre for Risk Management at King’s College London*;
  Geoffrey Podger, *Chief Executive of the UK Health and Safety Executive*;
  Jan Willem Weck, *Ministry of Health of the Dutch Government*

**Tuesday 11 December, Plenary Session 8:30 – 10:00 AM, Grand Ballroom**

“National Risk Assessment: Analysis to Guide Risk Management Around the World”

*Speakers:* Alan Cohn, *Deputy Assistant Secretary for Policy (Strategic Plans), Department of Homeland Security Office of Strategy, Planning, Analysis & Risk*;
  Elaine Dezenski, *Senior Director, World Economic Forum*;
  Henry Willis, *Rand Corporation*

**Wednesday 12 December, Plenary Luncheon, Noon – 1:30 PM, Grand Ballroom**

“Advancing Public Understanding of Risk Through the Media”

*Speaker:* Andrew Revkin, *DotEarth blogger, The New York Times*
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<tr>
<td>7:00-8:00 AM</td>
<td>New Member and Fellows Breakfast - Atrium 3-5</td>
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<tr>
<td>8:30-10:00 AM</td>
<td>M1 Plenary Session - Grand Ballroom “Advancing Risk Regulation: The UK’s Review of Health and Safety Rules”</td>
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<tr>
<td>10:00-10:30 AM</td>
<td>Coffee Break - Grand Ballroom Foyer</td>
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</table>
|              | Pacific Concourse D  
| 10:30 AM-     | M2-A Roundtable: Risk & Regulation: Recommendations for the Next Administration               |
| Noon         | Pacific Concourse K  
|              | M2-B Symposium: Ready for Prime Time? The Role of High Through-Put Screening in Risk Assessment for Engineered Nanomaterials |
|              | Pacific Concourse E/J  
|              | M2-C Poster Platform: Indoor Air & Products: Exposure & Risks                                  |
|              | Pacific Concourse F  
|              | M2-D: Visual Communication                                                                     |
|              | Pacific Concourse G  
|              | M2-E Symposium: New Developments in Transparency: A Transatlantic Perspective                   |
| 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. |
|              | Pacific Concourse D  
| 1:30-3:00 PM | M3-A: Food & Environmental Hazards: Trust and the Public                                       |
|              | Pacific Concourse K  
|              | M3-B Symposium: Structuring Risk Decisions: Policy and Personal Perspectives                     |
|              | Pacific Concourse E/J  
|              | M3-C Poster Platform: Topics on Applied Economic Analysis                                       |
|              | Pacific Concourse F  
|              | M3-D Symposium: Using Maps to Communicate Geospatial Risk and Uncertainty: Weather Forecasts and Environmental Hazards |
|              | Pacific Concourse G  
|              | M3-E Symposium: Risk and Uncertainty in Ecosystem Restoration Planning: Methodology and Case Studies |
| 3:00-3:30 PM | Coffee Break - Grand Ballroom Foyer                                                            |
| 3:30-5:00 PM | M4-A Symposium: Risk Communication for Pandemic Influenza: Lessons Learned in Canada from the H1N1 Outbreak |
|              | Pacific Concourse K  
|              | M4-B Symposium Part I: Framework and Methods - Recent Efforts for Advancing the Risk-Informed Decision Making System in the FDA Foods Veterinary Medicine (FVM) Program |
|              | Pacific Concourse E/J  
|              | M4-C Poster Platform: Sustainable Energy, Water, Infrastructure and Climate Change              |
|              | Pacific Concourse F  
|              | M4-D Symposium: Emerging Methods for Risk Assessment and Governance of Engineered Nanomaterials |
|              | Pacific Concourse G  
<p>|              | M4-E Symposium: Frontiers in Benefit-Cost Analysis: Valuing Risks and Equity                    |
| 6:00-8:00 PM | Poster Reception - Grand Ballroom                                                               |</p>
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<td><strong>Pacific Concourse H</strong></td>
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<td>M2-I: Network Representations of Critical Infrastructure Systems for Reliability Assessment</td>
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<td>M2-J Symposium: Technocracy and Democracy in Risk Governance</td>
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<td>M2-K Symposium: Wildfire Risk Perceptions and Attitudes &amp; Implications for Wildfire Management</td>
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<td>Pick up your box lunch near the Registration desk and attend the specialty group meeting(s) of your choice. See page 4 for details.</td>
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<td>Noon-1:30 PM</td>
<td><strong>M3-F Symposium: Produce Safety: Data Collection and Risk Assessments to Support the Development of Metrics and Regulations</strong></td>
<td><strong>M3-G: Analysis of Cyber Security Risk</strong></td>
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<td>M3-H: Low-Dose, MOH and Cancer Methods</td>
<td><strong>M3-I Symposium: Governing Sustainability: Different Approaches to Societal Integration in Risk Management Issues</strong></td>
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<td>M3-J Roundtable: The Transatlantic Debate on Risk Regulation</td>
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<td>M3-K: Cumulative Exposure &amp; Risk Screening</td>
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<td><strong>Pacific Concourse N</strong></td>
<td><strong>Pacific Concourse O</strong></td>
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<td>M4-F: Risk and Development Potpourri</td>
<td>M4-G: Analysis of Cyber Security Risk</td>
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<td>M4-H Symposium: Challenging the Linear-No-Threshold Dose-Response Model</td>
<td>M4-I: Resilience Evaluation Approaches for the Analysis of Complex Systems</td>
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<td>M4-J Roundtable: Smarter Regulation through Nudges, Information, Incentives</td>
<td>M4-K Symp: Cumulative Risk Assessment 1: The Leading and Trailing Edge: Multiple Agency Perspectives on Cumulative RA</td>
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<td>6:00-8:00 PM</td>
<td><strong>Poster Reception - Grand Ballroom</strong></td>
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*Monday 10 December 2012*
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<tr>
<td>7:00-8:00 AM</td>
<td><strong>Grad Student Breakfast</strong> - <em>Golden Gate</em></td>
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<td>8:30-10:00 AM</td>
<td><strong>T1 Plenary Session</strong> - <em>Grand Ballroom</em></td>
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<td>“National Risk Assessment and Analysis to Guide Risk Management Around the World”</td>
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<td><strong>Coffee Break</strong> - <em>Grand Ballroom Foyer</em></td>
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<tr>
<td>10:30 AM- Noon</td>
<td><strong>T2-A Symposium:</strong> From GMOs to Genetic Engineering and Synthetic Bio: Integrating Physical and Social Sciences for Risk-based Decision Making</td>
<td>Pacific Concourse D</td>
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<td>Noon-1:30 PM</td>
<td><strong>SRA Awards Luncheon and Business Meeting</strong> - <em>Grand Ballroom</em></td>
<td>Pacific Concourse K</td>
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<td>Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday’s Poster Reception. (Included in Registration Fee)</td>
<td>Pacific Concourse E/J</td>
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<tr>
<td>1:30-3:00 PM</td>
<td><strong>T3-A:</strong> Ecological Risk Assessment I</td>
<td>Pacific Concourse E/J</td>
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<td><strong>T3-B:</strong> New Voices</td>
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<td><strong>T3-C Poster Platform:</strong> Topics in Risk, Policy, Law and Governance</td>
<td>Pacific Concourse G</td>
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<td>3:00-3:30 PM</td>
<td><strong>Coffee Break</strong> - <em>Grand Ballroom Foyer</em></td>
<td>Pacific Concourse G</td>
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<td>3:30-5:00 PM</td>
<td><strong>T4-A Symposium:</strong> Dietary Exposure Assessments in Regulatory Decision Making</td>
<td>Pacific Concourse D</td>
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<td><strong>T4-B:</strong> Decision Making in Food and Medicine Supply Chains</td>
<td>Pacific Concourse E/J</td>
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<td><strong>T4-C Poster Platform:</strong> Supply Chain Risk Management: Challenges and Solutions</td>
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<td><strong>T4-D Symposium:</strong> Challenges in Developing and Assessing Tobacco Control Regulations</td>
<td>Pacific Concourse G</td>
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<td>6:00 - 7:30 PM</td>
<td><strong>Specialty Group Mixers,</strong> <em>See Page 4 for details</em></td>
<td>Pacific Concourse G</td>
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### Tuesday 11 December 2012

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<td><strong>Coffee Break</strong> - <em>Grand Ballroom Foyer</em></td>
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<tr>
<td>10:30 AM- Noon</td>
<td>Pacific Concourse H - T2-F: Innovative QRA Models: Food Safety &amp; Disease Transmission</td>
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<td>Pacific Concourse I - T2-G Symposium: Risk Analysis within the Department of Defense: Methods, Successes and Opportunities...</td>
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<td>Pacific Concourse L - T2-H: Modeling of Biological Agents</td>
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<td>Noon-1:30 PM</td>
<td>Pacific Concourse M - T2-I Symposium: Climate Change and Its Risks to Infrastructure</td>
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<td>Pacific Concourse N - T2-J: Estimates of Regulatory Costs and Public Attitudes About Them</td>
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<td>Pacific Concourse O - T2-K Symposium: Exploring the Limits of Risk Governance: How States Account for Failure in Europe (HowSAFE)</td>
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<td>1:30-3:00 PM</td>
<td>Pacific Concourse H - T3-F Symposium: Innovative QRA Models for Food Safety: Complex Models to Answer Complex Questions</td>
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<td>Pacific Concourse I - T3-G: Game Theory and Randomization</td>
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<td>Pacific Concourse L - T3-H: Shuffling the Deck on Chemical Risk Assessment</td>
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<td>Pacific Concourse M - T3-I: Topics in Critical Infrastructure Risk Modeling</td>
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<td>Pacific Concourse N - T3-J Symposium Part I: Unpacking to Advance Governance of Synthetic Biology Applications</td>
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<td>Pacific Concourse O - T3-K: Trench Models &amp; Vapor Intrusion</td>
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<td>3:00-3:30 PM</td>
<td><strong>Coffee Break</strong> - <em>Grand Ballroom Foyer</em></td>
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<td>3:30-5:00 PM</td>
<td>Pacific Concourse H - T4-F: Risk, Development and Health</td>
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<td>Pacific Concourse I - T4-G Symposium: Applying Quantitative Risk Assessment to Meet Stakeholder Needs</td>
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<td>Pacific Concourse L - T4-H Symposium: Putting It All Together: Recent Developments in Risk Assessment Approaches</td>
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<td>Pacific Concourse M - T4-I Symp: Human Health and Environmental Risk Assessment Issues Related to the Exploration, Development, and Operation of Unconventional...</td>
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<td>Pacific Concourse N - T4-J Symposium Part II: Unpacking to Advance Risk Governance of Synthetic Biology Applications</td>
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<td>Pacific Concourse O - T4-K Symposium: Strategic Risk Management of Department of Defense Emerging Contaminants</td>
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<td>6:00 - 7:30 PM</td>
<td><strong>Specialty Group Mixers</strong>, <em>See Page 4 for details</em></td>
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### Wednesday 12 December 2012

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<th>Time</th>
<th>Pacific Concourse D</th>
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<td>Noon-1:30 PM</td>
<td>Plenary Luncheon, “Advancing Public Understanding of Risk Through the Media” - Grand Ballroom</td>
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<td>3:30-5:00 PM</td>
<td>W4-B Symposium: New Directions in Risk Assessment with Roadmap for Success</td>
<td>W4-C Symposium: India at Risk: Capacity, Institutions and Expertise</td>
<td>W4-D Symposium: Novel Online Tools for Risk Communication Research: Applications in Food Risk Communication</td>
<td>W4-E: Career Panel</td>
<td>W4-F: Occupational Exposure &amp; Health</td>
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<td>5:00-6:00 PM</td>
<td>T-Shirt Giveaway - Free T-Shirt, sponsored by Wiley-Blackwell - Grand Ballroom Foyer</td>
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<td>8:30-10:00 AM</td>
<td>W1-H Symp: The Road Ahead: Developing a Research Agenda for Nanomaterial Environmental, Health and Safety Risk Assessment</td>
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<td>W1-I: From GIS to Bayesian Search: Risk Management Grab Bag</td>
<td>W1-J Roundtable: Improving Risk Regulation through Retrospective Analysis</td>
<td>W1-K Symposium: Risk Analytics to Strengthen the National Residue Program</td>
<td>W1-L: Service, Enterprise and Systems Risk Analysis Grab Bag</td>
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<td>W4-G Symposium: Risks of Transportation Disruptions and Dangerous Goods</td>
<td>W4-I: Simulation Approaches for Assessing Critical Infrastructure Vulnerability to National Hazards</td>
<td>W4-J: Emerging Technologies: Nano to Synthetic Bio</td>
<td>W4-K Symposium: Challenges in Conducting a Risk Assessment for Drug Residues in Milk and Milk Products</td>
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10:30 AM - Noon Pacific Concourse D
M2-A Roundtable: Risk & Regulation:
Recommendations for the Next Administration
Co-Chairs: George Gray, Ann Astrom
The 2012 Presidential election provides an opportunity to reflect on the Administration’s record and to make recommendations for future years, regardless of which candidate wins. This panel will bring together former senior government officials and other leading experts to discuss the current status of U.S. environmental, health, and safety regulation and future challenges.

Participants:
Driesen DM, Syracuse University; Sudley S, George Washington University; Graham J, Indiana University; Livermore M, New York University; Morgenstern R, Resources for the Future; O’Hare M, University of California, Berkeley; Thompson B, Stanford University

10:30 AM - Noon Pacific Concourse K
M2-B Symposium: Ready for Prime Time? The Role of High Through-Put Screening in Risk Assessment for Engineered Nanomaterials
Chair: Jo Anne Shatkin
10:30 am M2-B.1 Development of environmental impact assessment models for engineered nanomaterials: a transformative approach to nanotoxicology
Cohen Y, Lin H, Lin K, Rallo R, Godwin H, Nel A
University of California, Los Angeles
10:50 am M2-B.2 High-throughput screening: addressing the importance of model selection
Cohen Y, Lin H, Lin K, Rallo R, Godwin H, Nel A
University of California, Los Angeles

Monday
10:30 AM - Noon Pacific Concourse E/J
M2-C Poster Platform: Indoor Air & Products: Exposure & Risks
Chair: Chris Frey
M2-C.1 Characterization of PM2.5 Concentration in Indoor Residential Microenvironment
Jiao W, Frey HC
North Carolina State University
M2-C.2 Field measurement of in-vehicle to ambient concentration ratio of fine particulate matter
Jiao W, Frey HC
North Carolina State University
M2-C.3 Building chemical safety into toy product design: the foreseeable use based risk assessment
Lin Y, Altikorn B, Chen X, Rider G
Intertek
M2-C.4 Assessment of the contribution of indoor surface residues to SVOC exposure: nicotine as a model compound
Cooper E.L., Shinu BH, Kessel JC
University of Washington
M2-C.5 PCBs in the indoor environment
Zemba SG, Green LC
Cambridge Environmental Inc
M2-C.6 EPA-expo-box: a web-based toolbox for exposure and risk assessment
Turley AT, Cavley MA, Phillips L
ICF International, US EPA National Center for Environmental Assessment

10:30 - 11:30 AM
M2-D Visual Communication
Chair: Janet Yang
10:30 am M2-D.1 Use of exposure scaling factors to facilitate rapid screening of risk associated with multimedia exposures
ICF International, US Environmental Protection Agency
M2-D.2 Using pictographs for low numerates and percentages for high numerates in risk communication? A study of visual attention
Keller C, Hess R, Siegrist M
ETH Zurich
11:10 am M2-D.3 Visual typologies: expanding how we think about visualizing risk uncertainty
Eosco GM, Scherer CW
Cornell University
11:30 am M2-D.4 Improved methods for visualizing risk
Amundrud O, Aven T
University of Stavanger

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.
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<th>Time</th>
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<tr>
<td>10:30 AM - Noon</td>
<td>Pacific Concourse H</td>
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<td>M2-F Symposium:</td>
<td>Challenges Associated</td>
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<td>Foodborne Illness</td>
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<td>Co-Chairs: Dana Cole</td>
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<td>Michael Batz</td>
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<td>10:30 am</td>
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Monday

1:30 - 3:00 PM
Pacific Concourse D
M3-A Food & Environmental Hazards: Trust and the Public
Chair: Stijn Pieters
1:30 pm M3-A.1
Risk communication activities for radiation risks in Fukushima
Murayama TM, Shinya HS, Totoki YT
Tokyo Institute of Technology
1:50 pm M3-A.2
Communicating food risks in an era of growing public distrust
Lofstedt R
Kings College London
2:10 pm M3-A.3
Influences on farmers’ decision making to avoid drug residues in dairy cows - a mental modeling approach to risk communication
Tborne S, Hartogensis M, Ackerlund S, Kovacs D
Decision Partners; US Food and Drug Administration
2:30 pm M3-A.4
The role of compensation in trust-risk-acceptability relationships between environmental hazards
Gutiérrez VV, Broftman NC, Cifuentes LA
Universidad Diego Portales

1:30 - 3:00 PM
Pacific Concourse K
M3-B Symposium: Structuring Risk Decisions: Policy and Personal Perspectives
Chair: Robin Gregory
1:30 pm M3-B.1
Structuring choices: the decision sketch
Gregory R
Decision Research
1:45 pm M3-B.2
Decision aiding for the creation of energy strategies
Bessette DL, Arvai JL
University of Calgary
2:05 pm M3-B.3
Creating proactive alternatives to prevent youth deaths
Keene RL, Palley AB
Duke University
2:25 pm M3-B.4
Evaluative structures to aid understanding of uncertainty
Dieckmann NF, Gregory R, Peters E
Decision Research, Oregon Health & Science University, Ohio State University

1:30 - 3:00 PM
Pacific Concourse E/J
M3-C Poster Platform: Topics on Applied Economic Analysis
Chair: Frank Heed, Cristina McLaughlin
M3-C.1 A prioritization process for updating permissible exposure limits
Heart FJ, Aisaw AG, Barsan ME
National Institute for Occupational Safety and Health
M3-C.2 An estimation method for lightning damage on telecommunication equipment and a cost-benefit analysis of lightning countermeasure
Zhang X, Sugiymama A*, Sawada T
Nippon Telephone and Telephone Corporation
M3-C.3 Cost per life-year saved in the regulation of radioactive food contamination due to the Fukushima I nuclear accident
Oka T
Fuku Reperctual University
M3-C.4 Methods for elicitation of attribute weights using ordinal judgments about utilities
Wang C, Bier VM
University of Wisconsin-Madison

1:30 - 3:00 PM
Pacific Concourse F
M3-D Symposium: Using Maps to Communicate Geospatial Risk and Uncertainty: Weather Forecasts and Environmental Hazards
Chair: Lori Severtson
1:30 pm M3-D.1
The influence of map design and hazard proximity on risk beliefs and mitigation intentions for maps of arsenic in private residential water wells
Severtson DJ
University of Wisconsin-Madison
1:50 pm M3-D.2
Representations of risk space and decision-making in tornado warnings
Klockow KE, McDermion RA, Thomas RP
University of Oklahoma
2:10 pm M3-D.3
Mapping climate change uncertainty: a pilot study of effects on risk perceptions and decision making
Retchless DP
Penn State University
2:30 pm M3-D.4
Beyond the cone of uncertainty: effect of alternate hurricane forecast maps on evacuation intent
Trumbo C, Peak L, Lauck M, Marriott H, McNoldy B
Colorado State University, University of Miami

1:30 - 3:00 PM
Pacific Concourse G
M3-E Symposium: Risk and Uncertainty in Ecosystem Restoration Planning: Methodology and Case Studies
Chair: Matthew Bates
1:30 pm M3-E.1
Metric selection for ecosystem restoration: dealing with risk and uncertainty
US Army Engineer Research and Development Center, Environmental Lab
1:50 pm M3-E.2
Enhanced adaptive management: application to the everglades ecosystem
Linkov I, Convertino M, Foran C, Keiser JM, Scarlett L, LaSchiev A, Kiker G A
US Army Engineer Research and Development Center, University of Massachusetts Boston, Resources for the Future, US Army Corps of Engineers Jacksonville District, University of Florida
2:10 pm M3-E.3
Characterization of risk and uncertainty for developing a decision-based enhanced adaptive management framework for submerged aquatic vegetation restoration at Starved Rock Pool, Illinois River, USA
Plumley MB, Haring CP, Snedel BD, Baker KM, Vogel JT, Linkov I
US Army Corps of Engineers

1:30 - 3:00 PM
Pacific Concourse E
M3-F Symposium: Using Maps to Communicate Geospatial Risk and Uncertainty: Weather Forecasts and Environmental Hazards
Chair: Lori Severtson
1:30 pm M3-F.1
The influence of map design and hazard proximity on risk beliefs and mitigation intentions for maps of arsenic in private residential water wells
Severtson DJ
University of Wisconsin-Madison
1:50 pm M3-F.2
Representations of risk space and decision-making in tornado warnings
Klockow KE, McDermion RA, Thomas RP
University of Oklahoma
2:10 pm M3-F.3
Mapping climate change uncertainty: a pilot study of effects on risk perceptions and decision making
Retchless DP
Penn State University
2:30 pm M3-F.4
Beyond the cone of uncertainty: effect of alternate hurricane forecast maps on evacuation intent
Trumbo C, Peak L, Lauck M, Marriott H, McNoldy B
Colorado State University, University of Miami
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<th>Time</th>
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<tr>
<td>1:30 - 1:50 PM</td>
<td><strong>Pacific Concourse I</strong></td>
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</table>
| 1:30 - 1:50 PM | **M3-F Symposium:** Produce Collection and Risk Assessments to Support the Development of Metrics and Regulations  
Co-Chairs: Yuhuan Chen, Karin Hoezler |
| 1:30 pm   | **M3-F.1** Experimental field trials, pathogen transfer coefficients, and QPRAM (FDA's virtual produce farm risk assessment model)  
Oryang D, Atwill R, Anderson M  
FDA-CFSAN, UC Davis, RTI |
| 1:50 pm   | **M3-F.2** Risk profile on Listeria monocytogenes in fresh and fresh-cut produce: how far do the available data take us towards understanding the risk?  
Hoezler K, Cahill SM, Dennis S  
US Food and Drug Administration |
| 2:10 pm   | **M3-F.3** Lettuce, enterohemorrhagic E. coli and irrigation water: application of FDA's iRISK tool for rapid risk assessment to support proposed produce regulation  
Chen Y, Dennis S, Hoezler K, Pouillot R  
Food and Drug Administration - CFSAN |
| 2:30 pm   | **M3-F.4** Combining commercial data collection, targeted greenhouse and field trials and risk modeling, and risk assessment modeling to support scientifically informed risk management metrics for produce  
Bushan RL, Center for Food Safety and Security Systems, University of Maryland |
| 1:30 - 2:00 PM | **Pacific Concourse J**                                                            |
| 1:30 pm   | **M3-J.1** Perspectives on the US-Canada-EU risk assessment methodology dialogue: accomplishments and challenges  
Beck NB, American Chemistry Council |
| 1:50 pm   | **M3-J.2** From drugs to food and the environment: regulatory tennis games across the Atlantic  
Bonder, FF  
Maastricht University |
| 2:10 pm   | **M3-J.3** Actions not words: examining risk levels across the Atlantic  
Gray G  
George Washington University |
| 2:30 pm   | **M3-J.4** Responsibility, liability, and the nanny state  
Hammit JK  
Harvard/TSE |
| 1:30 - 2:00 PM | **Pacific Concourse K**                                                            |
| 1:30 pm   | **M3-K.1** From drugs to food and the environment: regulatory tennis games across the Atlantic  
Bonder, FF  
Maastricht University |
| 1:50 pm   | **M3-K.2** Cumulative exposure to neurodevelopmental stressors in U.S. women of reproductive age  
Evans AM, Riae GE, Teuschler AK, Wright JM  
Association of Schools of Public Health, US Environmental Protection Agency |
| 2:10 pm   | **M3-K.3** An intermediate screening assessment for multipathway risk incorporating site-specific characteristics  
Henning C, Marvin K, Holder C, Vargas S, Barson D, Hirtz J  
ICF International, US Environmental Protection Agency |
| 2:30 pm   | **M3-K.4** Citizen sensing: new era of pollutant monitoring for environmental health protection and sustainability  
MacDonell M, Finster M, Raymond M, Wyker D, Temple B  
Argonne National Laboratory |
Monday

3:30 - 5:10 PM
Pacific Concourse D
M4-A Symposium: Risk
Communication for
Pandemic Influenza:
Lessons Learned in
Canada from the H1N1
Outbreak

Chair: Cindy Jardine

3:30 pm M4-A.1
Developing population specific risk communications: messaging a Manitoba Metis Federation intervention for Metis citizens concerning pandemic H1N1
du Plessis E, Avery L
University of Manitoba

3:40 pm M4-A.2
Risk and decision-making: a case study of healthcare workers perceptions regarding the 2009 H1N1 outbreak
Elmieh N, Nicol AM, Astrakiana G
Quest University Canada, University of British Columbia

3:50 pm M4-A.3
Information sources in pandemic risk communication: a comparison between the SARS and H1N1 outbreaks
Jardine CG, Boyd AD, Boerner FU, Driedger SM
University of Alberta, University of Calgary, Institute for Technology Assessment and Systems Analysis, University of Manitoba

4:00 pm M4-A.4
Pregnant women's decision making processes during the H1N1 pandemic: perspectives of a threatening virus and a risky response
Kowal SP, Jardine CG, Babela TM
University of Alberta, University of Calgary, Institute for Technology Assessment and Systems Analysis, University of Alberta

4:10 pm M4-A.5
Leveraging epidemiology and risk assessment methods to inform risk-based food safety decisions
Hoffmann SA
USDA, Economic Research Service

4:20 pm M4-A.6
Applying the IOM framework to FDA's current FVM program
Food and Drug Administration

4:30 pm M4-A.7
Economics-based methodology for ranking foodborne microbiological contaminants
Lasher AB, Minor TP, Brown B, Parish M
FDA-CFSAN

4:40 pm M4-A.8
Developing a path forward to advancing risk informed decision making in the Food Veterinary Medicine Program (FVM) at FDA
US Food and Drug Administration

3:30 - 5:10 PM
Pacific Concourse E/J
M4-B Symposium: Part I:
Framework and Methods -
Recent Efforts for
Advancing the Risk-
Informed Decision
Making System in the FDA

Chair: Igor Linkov

3:30 pm M4-B.1
Risk analysis and water resources management for sustainable cities and military installations
Lambert JH
University of Virginia

3:40 pm M4-B.2
Decision support for net zero installations: integration of technical data and subject matter expertise in a virtual testbed to support optimization of high performance buildings, combined heat and Po
case MP, Swanson M, Bates M
US Army Engineer R&D Center

3:50 pm M4-B.3
Measuring a buzz word: a review of sustainability metrics
Tatham E, Foran C, Linkov I
Boston University-USACE

4:00 pm M4-B.4
Integrated perspectives on sustainable infrastructures for cities and military installations
Myriam M, Wilbanks T
National Institute for Environment, Oak Ridge National Laboratory

4:10 pm M4-B.5
Energy security: using multicriteria decision analysis to select power supply alternatives for small settlements under risk and uncertainty
Karlsruhe Institute of Technology, Simulations Systems Ltd., Olmink State Technical University for Nuclear Power Engineering, ETH Zurich

3:30 - 5:10 PM
Pacific Concourse F
M4-D Symposium:
Emerging Methods for
Risk Assessment and
Goverance of Engineered Nanomaterials

Chair: Danail Hristozov

3:30 pm M4-D.1
We can't study everything: a value of information case study to prioritize nanomaterials research
Bates ME, Keisler JM, Wender BA, Zushihtn N, Linkov I
US Army Engineer R&D Center, University of Massachusetts Boston, Arizona State University, Massachusetts Institute of Technology

3:40 pm M4-D.2
Risk and regulation for the production of nano-materials: the decade ahead
Kuiken T
Woodrow Wilson International Center for Scholars

3:50 pm M4-D.3
Modeling stochastically environmental concentrations and risks of engineered nanomaterials
Gottschalk F, Sonderer T, Ort C, Kost E, Scholz RW, Nawack B
ETH Zurich

4:00 pm M4-D.4
A weight of evidence approach for hazard screening of engineered nanomaterials
Hristozov DR, Zahe A, Foran C, Critto A, Maresonini A, Linkov I
Ca' Foscari University Venice, US Army Corps of Engineers
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<th>Time</th>
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<th>Panel/Topic</th>
<th>Chair/Panelists</th>
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<tr>
<td>3:30 - 5:10 PM</td>
<td>Pacific Concourse G</td>
<td><strong>M4-E Symposium:</strong> Frontiers in Benefit-Cost Analysis; Valuing Risks and Equity</td>
<td>Chair: Lisa Robinson</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>M4-E.1</td>
<td>The social value of mortality risk reduction: VSL vs. the social welfare function approach</td>
<td>Adler MD, Hammitt JK*, Treich N Harvard University</td>
</tr>
<tr>
<td>3:50 pm</td>
<td>M4-E.2</td>
<td>Valuing morbidity risk: willingness to pay per quality-adjusted life year</td>
<td>Hammitt JK, Haninger K, US Department of Health and Human Services</td>
</tr>
<tr>
<td>4:10 pm</td>
<td>M4-E.3</td>
<td>Comparing risk preferences over financial and environmental lotteries</td>
<td>Riddell MC, University of Nevada, Las Vegas</td>
</tr>
<tr>
<td>4:30 pm</td>
<td>M4-E.4</td>
<td>Cost-benefit analysis and distributive weights</td>
<td>Adler MD, Duke University</td>
</tr>
<tr>
<td>4:50 pm</td>
<td>M4-E.5</td>
<td>Improving prediction market forecasts for policymaking</td>
<td>Karvetzki CW, Olson KC, George Mason University</td>
</tr>
<tr>
<td>3:30 - 5:00 PM</td>
<td>Pacific Concourse H</td>
<td><strong>M4-F Risk and Development Potpourri</strong></td>
<td>Chair: Alison Callen</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>M4-F.1</td>
<td>When is enough sampling enough? An ESHIA survey</td>
<td>Shibata MF, Haasemann NT, ERM, Inc.</td>
</tr>
<tr>
<td>3:50 pm</td>
<td>M4-F.2</td>
<td>Commmodification of a risky business</td>
<td>Häggren M, Jacobson M, Umeå School of Business and Economics, Umeå University</td>
</tr>
<tr>
<td>4:10 pm</td>
<td>M4-F.3</td>
<td>Cumulative risk assessment approach for tribal members at the Hanford site</td>
<td>Callahan KL, Riddolfi C, Cironne P Riddolfi Inc.</td>
</tr>
<tr>
<td>4:30 pm</td>
<td>M4-F.4</td>
<td>Exposure to artificial ultraviolet radiations from sunbeds: health impact assessment on cutaneous melanoma in France</td>
<td>Bonid M, Coignard F, Vazquier B, Benmarbina T, Gaillard-de Saintignon J, Le Tertre A, Dore JF, Estepure, Bissouner P IPRJ, InVS, INPES, INCA, INSERM</td>
</tr>
<tr>
<td>4:50 pm</td>
<td>M4-F.5</td>
<td>Impact of the linear-no-threshold model on reported regulatory benefits</td>
<td>Dudley SE, The George Washington University</td>
</tr>
<tr>
<td>3:30 - 5:10 PM</td>
<td>Pacific Concourse L</td>
<td><strong>M4-H Symposium:</strong> Challenging the Linear-No-Threshold Dose-Response Model</td>
<td>Chair: Gail Charney</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>M4-H.1</td>
<td>Historical basis for using the linear-no-threshold model in chemical regulation</td>
<td>Golden R, ToxLogic LLC</td>
</tr>
<tr>
<td>3:50 pm</td>
<td>M4-H.2</td>
<td>Results of the US Department of Energy’s low-dose radiation research program</td>
<td>Brooks A, Washington State University (Retired)</td>
</tr>
<tr>
<td>4:10 pm</td>
<td>M4-H.3</td>
<td>Developing dose-response genotoxicity and toxicogenomic data to replace default assumptions of the linear-no-threshold (LNT) dose-response model</td>
<td>Retio L, Integrated Laboratory Systems, Inc</td>
</tr>
<tr>
<td>4:30 pm</td>
<td>M4-H.4</td>
<td>Thresholds for chemically induced toxicity: theories and evidence</td>
<td>Schney R, US EPA</td>
</tr>
<tr>
<td>4:50 pm</td>
<td>M4-H.5</td>
<td>Impact of the linear-no-threshold model on reported regulatory benefits</td>
<td>Dudley SE, The George Washington University</td>
</tr>
<tr>
<td>3:30 - 5:10 PM</td>
<td>Pacific Concourse M</td>
<td><strong>M4-I Resilience</strong></td>
<td>Chair: Royce Francis</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>M4-I.1</td>
<td>Developing a resilience metric to measure effectiveness of various defensive investments</td>
<td>Tras S, Bier VM, Penn State Berks, UW-Madison</td>
</tr>
<tr>
<td>4:10 pm</td>
<td>M4-I.3</td>
<td>Risk performance indicators for increasing the protection and resilience of critical infrastructure</td>
<td>Fischer RE, Pettit FD, Argonne National Laboratory</td>
</tr>
<tr>
<td>4:30 pm</td>
<td>M4-I.4</td>
<td>The role of human factors in enhancing current and future resilience of critical national infrastructure</td>
<td>Pearse JM, Rogers MB, King’s College London</td>
</tr>
<tr>
<td>3:30 - 5:10 PM</td>
<td>Pacific Concourse N</td>
<td><strong>M4-J Roundtable:</strong> Smarter Regulation through Nudges, Information, Incentives</td>
<td>Co-Chairs: Sally Kane, Susan Dudley</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>M4-J.1</td>
<td>The Obama Administration has issued a variety of directives aimed at improving regulatory outcomes through disclosure, flexible compliance options, default rules, and ‘humanized cost benefit analysis’. This roundtable will explore the potential for these regulatory approaches, which according to E.O. 13563, “include warnings, appropriate default rules, and disclosure requirements as well as provision of information to the public in a form that is clear and intelligible,” to “reduce burdens and maintain flexibility and freedom of choice for the public.” 2) The extent to which these innovations are being incorporated into rulemaking, and 3) lessons learned including challenges of incorporating behavioral approaches (‘nudges’) into regulatory approaches.</td>
<td>Chair: Steve Gibb, The Scientific Consulting Group, Inc.</td>
</tr>
<tr>
<td>3:50 pm</td>
<td>M4-J.2</td>
<td>A practical approach to cumulative risk assessment: lessons learned from a California cumulative impacts screening methodology</td>
<td>Martin L, Martin L, US Environmental Protection Agency</td>
</tr>
<tr>
<td>4:10 pm</td>
<td>M4-J.3</td>
<td>Integration of cumulative risk and environmental justice assessments: methods and a case study example</td>
<td>Barzyk TM, Martin L, US Environmental Protection Agency</td>
</tr>
<tr>
<td>4:30 pm</td>
<td>M4-J.4</td>
<td>Communicating risk and health education can be an important aspect of cumulative risk assessment</td>
<td>Martin L, Martin L, US Environmental Protection Agency</td>
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| 4:50 pm   | M4-J.5        | The ‘Trailing Edge’ on cumulative risk assessment - communication lessons from the US EPA’s cumulative exposure project | Gibb SK, The Scientific Consulting Group, Inc.
Monday
6:00 - 8:00 PM
Grand Ballroom

P Poster Reception

P1 Effects of time series change of presented frequency of aversive stimuli on overestimation of frequency
Kapihura N
Osaka University

P2 The impact of risk-related uncertainty on people’s demands for the regulation of risks
Poortvliet PM
Wageningen University

P3 Blaming the butterfly for the hurricane: risk perception in a chaotic world
Steinhardt J
Cornell University

P4 From process-based risk analysis to organizational attention—Learning from Fall of France 1940 and K2 2008
Katsch E, Hall M
Cranfield University, School of Management

P7 Moral aspects and the role of fragility in perceiving societal risks
Basarab A, Pfister HR, Böhm G
Leuphana University Luenenburg University Bergen

P8 A mental model approach to understanding poaching behavior
Dempsey T, Rivers, III L
MSU

P9 Gender and risk perception among police officers
Chua YT, Rivers L
Michigan State University

P11 Communication confusion: an analysis of the controversy surrounding the regulation of Bisphenol A in Europe
Cheadle JL
King’s College London

P12 Visual typologies: a case study of uncertainty in wall-to-wall tornado coverage
Eason GM, Steinhardt J, Scherer CW
Cornell University

P13 Assessing intercultural differences in response to risk messages related to oil spills and dispersant use
Lachlan KA, Spong PR
University of Massachusetts Boston

P15 Informing management for socioecological resilience in the Sierra Nevada bioregion
Winter PL, Skinner CN, Long J, Patterson T, Charnley S
USFS Pacific Southwest Research Station

P16 I share, therefore I am: a U.S.-China comparison of information sharing behaviors related to climate change
Yang ZJ, Kablor L
SUNY at Buffalo

P17 Identifying the role of social and psychological factors in farmer nutrient management choices
Wilson R5, Ritter T
Ohio State

P18 Social media value modeling: applications and best practices in decision-making and risk communication strategy
Graham KC, Fureby KF, Vidolof KG
Eosco G
United States Military Academy, West Point

P19 Professional and public perceptions of information needs during a drinking water contamination event
Ynd C, Minamyer S, Tardif R
US Environmental Protection Agency

P20 Peer review the ITERate way: results of four chemical reviews
Nance P, Willis A, Patterson J, Dowron M
Toxicology Excellence for Risk Assessment

P21 Advancing collaboration in workplace health risk assessment: the Occupational Alliance for Risk Science (OARS)
Nance P, Maier A
Toxicology Excellence for Risk Assessment

P22 Risk communication in the light of different risk perspectives
Veland H, Aven T
University of Stavanger

P24 Estimating the relative impact of shipping traffic, vehicular traffic and domestic solid fuel combustion upon air quality in Cork City, Ireland: a case study
University College Cork, University of Toronto

P25 An innovative approach to circumpolar risk communication research on environmental contaminants
Health Canada, Trent University, Arctic Monitoring and Assessment Program

P26 Is there overlap in US hazard characterization programs that focus on environmental exposure—an evaluation of the data
Beck NB, Becker RA
American Chemistry Council

P27 Delphi survey of issues after the 2011 Great East Japan Earthquake: interim report 3
Maeda Y, Sato K, Mutoyoshi T
Shizouka University, Aoyama Gakuin University, Kansai University

P28 Characterization of risk to population health
Lafuente PLF, Cifuentes LAC, Pica APT
Pontificia Universidad Católica de Chile

P29 Human health risk assessment of hydraulic fracturing
Pawlisz A
Conestoga-Rovers Associates

P30 Health impact assessment or risk assessment: what’s the difference?
McDonald Gibson J, Singleton-Baldrey L, Demmerlein T, Rodríguez D
University of North Carolina, Chapel Hill

P31 Hazard identification: PBT assessment of hydraulic fracturing fluids from coal-seam gas field in Australia
Bikvary T, Goulding N, Beran C
EHS Support, Inc., EHS Support, Inc., Beran, CJF Consulting LLC
Monday

P.32 Using cognitive science methods and tools to define influences on user participation in environment Canada's science alert database 
Kovacs DC, Pollock JS, Thorne S, Batte G, Renard D 
Decision Partners; Environment Canada, Science and Technology Branch 
P.41 Decision aiding for climate risk mitigation in developing countries 
Kenney L, Arroyo J 
University of Calgary 
P.43 Greenhouse gas emissions, air pollution, and overall societal cost for household heating scenarios in Finland 
Kallius V, Taimisto P, Taimio M, Tuominen T 
National Institute for Health and Welfare, Finland, Systems Research Institute, Poland 
P.47 Project risk management practices in Middle East construction industry: an empirical investigation 
Sadeghi F, Hajighaderi M 
Pardazesh Samaneh Farboud Consulting Co. 
P.49 A neural network-based model for predicting risk of supplier's environmental failure 
Hajighaderi M, Salamat M 
Meisam Paper Co. 
P.51 Risk preferences and decision making in a wildland fire context: insights from a multi-attribute lottery experiment 
Hand MS, Wibbenmeyer M, Calkin DE, Thompson MP 
US Forest Service, Rocky Mountain Research Station 
P.54 Heavy metal screening tool 
Tran N, Barragán L*, Truscott T, Safford A 
Exponent, Inc. 
P.56 A statistical method for analysis of relative toxicity values and its application to risk vs. risk trade-offs of metals 
Takeshiba J, Gamo M, Kameji K, Tsubaki H 
National Institute of Advanced Industrial Science and Technology (AIST), The Institute of Statistical Mathematics 
P.58 Detecting tumor response to therapy with automated analysis of contrast-enhanced ultrasound 
Ta CN, Yi BH, Wu Z, Mattrey RF, Kummer AC 
University of California San Diego 
P.60 EPAs benchmark dose modeling: current capabilities and future direction 
Law L, Davis JA, Gift JS* 
US Environmental Protection Agency 
P.61 Identification of critical data gaps in the development of a key events dose-response framework for Bacillus anthracis 
Hines S, Conner JE 
Battelle 
P.66 Derivation of a chronic oral reference dose for cobalt 
Mount AD, Gaffney SH, Paustenbach DJ, Finley BF 
ChemRisk, LLC 
P.67 Birth weight, household smoking, and the risk of wheezing in one million adolescents: a retrospective cohort study 
Lin MH, Ho WC, Chen PC, Wu TN, Lin RS 
China Medical University 
P.69 Assessment of cadmium (a tobacco smoke toxicant), as a driver of genotoxicity. 
Cunningham FH, Fiebelkorn SA, Dillon DM, Meredith C 
Group Research and Development, British American Tobacco, UK 
P.71 Structured expert judgment for characterize uncertainty between PM2.5 exposure and mortality in Chile: preliminary results 
Cisternas PC, Bronfman NC, Celz RB, Ciferriet LA 
Universidad Andres Bello
P72 Non-cancer risk assessment of 1, 3-Butadiene: draft acute and chronic reference exposure levels for California
Braun JP, Winder B, Salmon AG, Marty MA, Alcoff GV
California Environmental Protection Agency

P73 Application of a Multiple Model Data Fusion Framework (MMDF) for chemical warfare agents toxicology and their degradation products from a public health and clinical risk assessment perspective
Mokaptra AK
Health Canada

P74 Aggregate human health risk assessment of urban daily life environment in Beijing
Xin S, Linyu X
Beijing Normal University, P.R.China

P75 Parameters for a biomonitoring plan for mercury in freshwater ecosystems
Burger J, Goethelm M, Kasson D, Powers CW, Clarke J
Rutgers University and CRESP

P76 Bioavailability and ecological risk of metals in an estuarine habitat: evaluation of multiple lines of evidence
Koetzner J-A
Black & Veatch Special Projects Corp.

P78 Compilation and evaluation of associations between Deformities, Erosions, Lesions and Tumors (DELT Anomalies) in freshwater fish and chemical and non-chemical stressors for EPAs causal analysis
Burris JA, Suter G, Gerritsen J
CDM Smith

P79 The analysis of geographical patterns of climate variability changes. Using inter-quantile distances and surface temperature data
Timofeev AA, Sterin AM
RIHMI-WDC

P80 Application of ROC curves in analyzing meteorological risks
Agurenko AO
RIHMI-WDC

P82 Gaining the social license to operate
Frose KL, Kapustka LA
SLR Consulting, Canada

P83 Methodology for the estimation of the environmental risk
Pita APT, Cifuentes LAC, Lapunite PLF
Pontificia Universidad Católica de Chile

P84 Valuation methodology for the health benefits associated to reducing PM2.5 concentration
Cifuentes L, Cabrera C
Pontificia Universidad Católica de Chile

P85 Risk trade-off analysis on the substitution of automotive coatings from organic solvent-borne coatings to water-borne coatings
Kapitana H, Takei A, Irone K
National Institute of Advanced Industrial Science and Technology

P86 Theoretic analysis of human behavior in a chemical plant on the basis of Probabilistic Risk Analysis (PRA) and game theory
Matsumoto K, Takehita J
National Institute of Advanced Industrial Science and Technology

P87 Development of innovative methodology for safety assessment of industrial nanomaterials: overview of research framework
Ganov M, Honda K, Yamamoto K, Fuku-shima S, Takebayashi T
National Institute of Advanced Industrial Science and Technology (AICT), Japan Bioassay Research Center, Keio University

P88 A model of the oxidation of nanosilver in surficial freshwater sediments: exploring research needs and the role of sediments in nanosilver risk forecasting
Dale AL, Lawry GV, Camden EA
Carnegie Mellon University

P89 A risk based perspective suitable for high reliability seeking organizations: with applications to the oil and gas industry
Khosandi JD, Areen T
University of Stavanger

P90 Accuracy and simulation speed comparison between the Lattice Boltzmann Method with free surface and fluent applied to a process safety case study
Rodríguez SE, Díaz JC, López OD, Muñoz F
Universidad de los Andes

P91 Technology for ubiquitous uncertainty propagation
Ferson S, OReave J, Mikuley J, Cheng B
Applied Biomathematics

P92 Identifying and prioritizing shared rail corridor safety & other technical challenges
Saad MR, Coughlin B, Barkan C
University of Illinois at Urbana-Champaign

P94 Project risk management cycle
Cretu V, Cretu O, Lim JK
Cretu Group L.L.C.

Monday

P95 The value of cost and schedule risk management
Kleinfield

P97 Estimating occupational accidents severity: a fuzzy approach for reducing its subjectivity
Pinto A
ISEC - Instituto Superior de Educação e Ciências - Lisboa, Portugal

P98 New TCE and PCE toxicity values and implications for vapor intrusion sites
Lin C, Lube N
CDM Smith

P99 Probabilistic analysis of Legionella outbreak data and its potential contribution to microbial risk assessment
Walitt F, Fontenoy L, Cavannes PA
EDF Service des Etudes Médicales, France, Société de Calcul Mathématique, France

P100 An alarm for ALARA: decision analysis applied to radiation protection
Neptune and Company, Inc.

P101 Phase I impact assessment results for polybrominated diphenyl ethers and vanadium compounds
Rak A, Bazz N, Vogel C, Lanier K
Nobilis, US Army Public Health Command

P102 Human health risk assessment of pesticide mixtures
Chiang SY, Wu HC, Wu KY
China Medical University

P103 Using food label data to assess the intake of sodium for various US subpopulations
Brookh relocates to the slopes of Mt. Etna, China Medical University

P104 Estimating parameters from categorical food consumption and food handling survey data
Chardon JE, Smart AN
RIVM, National Institute for Public Health and the Environment, The Netherlands

P105 Hand and object to mouth contact activities and non-dietary soil and dust ingestion rates for young children in Taiwan
Chien LC, Winder D, Ogskaynak H, Tsu M, Hsu ZY, Hsu HC, Bradham K, Beamer P
Taipei Medical University, Taiwan, US EPA, National Pingtung University, Taiwan, National Taipei University of Technology, Taiwan, University of Arizona

P106 Apportionment of exposure and risk from contaminants of emerging concern
Green C, Gooden HM, Rze N, Shubat PJ
Minnesota Department of Health

P107 Developing a communication tool of food-related radiation risk
Hosono H, Kumaaya Y, Selezzuki T
The University of Tokyo

P108 Does the trust on food safety system affect Japanese radiation perception on foods after Fukushima accident?
Hosono H, Nakashima Y
The University of Tokyo

P109 Health risk assessment of fine suspended particulate in rural and urbanizing areas of Taiwan
Ho WC, Liu MH, Tsai MS, Chen PC, Cheng TJ
China Medical University
P.107 Importance of the population exposure model in the impact of PM and daily mortality
Stratupa V, Joaquera H, Cifuentes LA
Pontificia Universidad Catolica de Chile

P.118 Estimating indoor air exposure concentrations of biodegradable VOCs using API’s BioVapor Spread-sheet Model
Turnham P, Richter RO, Griffin JR
Exponent

P.120 Advancements in risk assessment: evolving methods and future directions
Williams PRD, Dotson GS, Maier A
E Risk Sciences, LLP

P.121 Update on MTBE in public drinking water wells in California (1995 to 2011)
Williams PRD
E Risk Sciences, LLP

P.123 Addressing potential risks of emerging technologies: a comparative study of R&D cases at AIST
Kasimoto A
National Institute of Advanced Industrial Science and Technology

Monday

P.126 High tension wires: risk of leukemia in the Lebanese childhood population
El Yafoubchi W R
Cyprus International Institute in Association with Harvard School of Public Health

P.128 Investigation of differing rates of protective behavior adoption on West Nile virus by Hispanics and non-Hispanics: a cognitive-affective risk perception approach
Kim SY, Davidson CP, Luick MM, McLean DN, Trumbro CW
Colorado State University

P.132 Risk communication in the doctor-patient relationship
Greish DL, Dolertis LA, Eisenger F
IBM Research, Institut Paoli-Calmettes

P.133 Shame, obesity, and persuasion
Timberlake SE
North Carolina State University

P.134 Risk of emerging pollutants: the presence of pharmaceuticals in water bodies
Castineira D, Gomez N, Rodriguez Moreyta M, Monzon AN, Demichelis SO*
National University of Lanus, JF Kennedy University of Argentina

P.135 Sanitary risk in vulnerable districts: the villa Porá In Lanús a case of study
Jazmin N, Quintana J, Rinoldi B, Monzon AN, Demichelis SO*
National University of Lanus

P.136 Public perception of wood smoke and traffic-related air pollution as health risks in Finland
Ung-Lanki S, Lanki T
National Institute for Health and Welfare

P.140 Deliberating geoengineering risks: the case of stratospheric aerosols and the SPIICE Project
Pidgeon NF, Parkhill KA, Corner A, Vaughan N
Tyndall Centre, Cardiff University and University of East Anglia

P.141 Quantification of pathogens in graywater using molecular approaches
William JB, de los Reyes FL, Femy HC
North Carolina State University

P.142 Framework proposal to incorporate risk management for holding companies
Ladario MP, Ariga AG, Landaras CC, Mota AG
ELO Group Desenvolvimento E Consultoria

P.143 Framework proposal to support the integration of risk management and business continuity management
Ladario MP, Farias Filho JR
ELO Group Desenvolvimento E Consultoria

P.144 Prototyping study for the French Food Safety Observatory
Cuzzocoli D, Gauchard F, Poisson S, Teige B, Sanaa M

P.145 Interactive online catalogue on risk assessment
Swart A, Nauta M, Razante JM
The National Institute for Public Health and the Environment (RIVM), National Food Institute and University of Maryland
Monday

P148 Validation of a risk assessment model of variant Creutzfeldt-Jakob Disease (vCJD) transmission via red cell transfusion
Yang H, Gregori L, Asher D, Picardo P, Anderson SA
US Food and Drug Administration

P149 Quantitative microbial risk assessment for gastrointestinal illnesses associated with recreational water exposure, using time-lapse photography in the Philadelphia area
Singer NS, Haas CNH
Drexel University

P150 Using lessons learned from the field to inform microbial exposure assessment
Silvestri E, Chappie D, Lardo R, Taff S, hinges S, Stone H, Nicholas T
US Environmental Protection Agency, Battelle Memorial Institute

P151 Prioritizing risks and uncertainties from intentional release of selected category A pathogens
Hong T, Garrett PL, Huang Y, Haas CN
National Exposure Research Laboratory, USEPA

P152 Multi-period defensive resource allocation considering equity and possibly non-strategic attackers
Shen X, Zhuang J
University at Buffalo, SUNY

P153 Green chemistry and green engineering as a key driver of innovation in life sciences industry - case studies
Kim ST, Seid D, Schatz J
Life Technologies

P154 A risk based approach to shipping life sciences reagents at ambient temperature to reduce environmental impact and retain their quality and stability
Kim ST, Schatz J
Life Technologies

P155 Rivers, world of leisure activities and industrial world: from confrontation to risk management
Guillaume O
Electricité De France R&D

P156 High risk perception and low risk prevention in high risk cancer families
University of Melbourne

P157 Import security: assessing the risks of imported food
Wellburn JW, Bier VM, Hoering SQ
University of Wisconsin - Madison

P158 Uncertainty and identity as moderators of fairness perceptions in the context of agricultural biotechnology
Besley JC, McConas KA, Steinhardt J
University of Minnesota

P159 Polychlorinated Naphthalene, another PCBs?
Julius C, Marcum T, Luke N
CDM Smith

P160 ‘Controllable’ risk and attributing responsibility for causing and preventing an accident: a study of three US National Parks
Richard LN
SUNY College of Environmental Science and Forestry (ESF)

P161 Coordination in a risky environment
Jaolsson M, Hallgren M*
Umeå School of Business and Economics, Umeå University

P162 Development of an indoor exposure assessment tool (iAIR)
Donnici CC, Pidgeon N, Poortinga W
Cardiff University

P163 Weighing environmental vs. economic risks, costs, benefits, and values: predicting home energy upgrade program participation
Pirast S, Neill H, Young G
University of Nevada, Las Vegas

P164 Public perception of renewable energy technologies: examining the notion of widespread support and the role for climate change and energy security risk perceptions
Donnici KK, Pidgeon N, Poortinga W
Cardiff University

P165 Public perception of future biotechnologies: the role of risk perception, trust, knowledge, and social norms
Poortinga PM, De Bruin M, Mulder B, Lagiig P
Wageningen University, Utrecht University

P166 ‘Controllable’ risk and attributing responsibility for causing and preventing an accident: a study of three US National Parks
Richard LN
SUNY College of Environmental Science and Forestry (ESF)

P167 Public perceptions of the deadly 2011 Listeria in cantaloupe outbreak
Cuite CL, Singer-Morish A, McWilliams RM, Hallman WK*
Rutgers, The State University of New Jersey

P168 Public perception of renewable energy technologies: examining the notion of widespread support and the role for climate change and energy security risk perceptions
Donnici KK, Pidgeon N, Poortinga W
Cardiff University

P169 Development of an indoor exposure assessment tool (iAIR)
Donnici CC, Pidgeon N, Poortinga W
Cardiff University

P170 Safier spaces: public perceptions of engagement with and reactions to countering terror in public places
Rogers MB, McAndrew C, Triggs T, Laxton R, Wootton A
King’s College London, London College of Communication, University of the West of England, University of Salford

P171 Effects of acknowledging uncertainty over time: the case of intentional food contamination
Hallman WK, McWilliams RM, Singer-Morish A*, Cuite CL
Rutgers University

P172 Mental model of the dust bowl migration
Michigan State University

P173 Effects of acknowledging uncertainty over time: the case of intentional food contamination
Hallman WK, McWilliams RM, Singer-Morish A*, Cuite CL
Rutgers University

P174 Exploring the health care surge in the Philadelphia area
Singer NS, Haas CNH
Drexel University

P175 Nuclear power before and after Fukushima: how are attitudes, ambivalence and knowledge related?
Vischers V, Wallqvist L
ETH Zurich

P176 Risks of advanced artificial intelligence
Anissimov MA
Singularity Institute

P177 Relationships between administered dose, body burden and thermoregulatory response after acute oral exposure to multiple pyrethroid insecticides in rats
University of Buenos Aires (UBA) and Argentine National Research Council (CONICET)

P178 A false balance? Affect, exemplars, and media coverage of controversial risk
Dixon GN
Cornell University

P179 Applying the source to outcome pathway concept to chemical risk assessment: considering consumer safety and environmental impact together
Solomatis N, Makomber I, Maxwell G
SEAC UNILEVER

P180 Introduction of risk size in the determination of uncertainty factor
UFL in risk assessment
Xue JL, Lu Y, Velasquez N, Hu HY, Yu RJ, Lin ZT, Meng W
Tsinghua University, China

P181 An agent-centered risk and decision-analytic approach to climate change adaptation
Clifford K, Huizenga MT, Travis WT, Clifford KB
University of Colorado

P182 California setting the standard with low-threat UST closure criteria
Aranda Lasantham R, Cheung R*
Geosyntec Consultants - Engineering Consulting

P183 Psychological distance of adaptation and mitigation
Spasojevic R
Cardiff University

P184 Case studies: human food safety assessment of hormone-like drugs used in food-producing animals
Zhou T, Yan D*, Gao S, Friedlaender LG, Ekselman KB, Aquil MC
Food and Drug Administration, Center for Veterinary Medicine

P185 Nuclear power before and after Fukushima: how are attitudes, ambivalence and knowledge related?
Vischers V, Wallqvist L
ETH Zurich
SRA looks forward to seeing you in
Baltimore, Maryland
December 8-11, 2013
See you next year!

P.188 Prioritizing emerging pathogens in transfusion safety through expert elicitation
Neslo REJ, Jansen MP, Ooi W
Julius Center for Health Sciences and Primary Care

P.189 Characterisation and regulatory oversight of carbon monoxide risks from heating appliances in Ontario
Sridharan S, Vermaamy A, Mangalam S
TSSA, Canada

P.190 Why intuitive risk judgements deviate from statistical risk estimates, and how can the deviations be mediated?
Komatsu H
Central Research Institute of Electric Power Industry (CRIEPI)

P.191 Electromagnetic interference: risk of exceeding immunity of medical equipment in a hospital ward with a roaming wireless device
Arkanan M, Schmitt KA*, Trueman CW
Concordia University, Canada

P.192 Using GIS with human health risk analysis to discover an unexpected soil pollutant source
Wallace LN, Wurzel KA
NewFields

P.193 Effects of mental models on risk judgments among receivers of hazard and exposure information about dioxins
Diebol JK
University of Michigan

P.194 Respiratory effects associated with NO2 dose in the context of workplace exposures, Part A: examination of changes in symptomatology and pro-inflammatory mediators
Davies DB, Bryant DIF*, Bibian K, VanGoest J
Institute for Environmental Health Sciences

P.195 Respiratory effects associated with NO2 dose in the context of workplace exposures, Part B: meta-analysis of changes in lung function and airway hyper-responsiveness
Souweine K, Butler K, LeClair H, McDaniel M
McDaniel Lambert

P.196 Stimulating reflexive research among undergraduate researchers of nanotechnology
Ecos GM, Talapragada M*, McComas KA, Brady MM
Cornell University, Bates College

P.197 Probabilistic cost-effectiveness analysis of influenza control strategies using an agent-based model
Karimi E, Schmitt K*, Akgunduz A
Concordia University

P.198 Risk of an outbreak and excess cancer associated with varying drinking water regulatory stringency in Canada
Sali A, Schmitt K*
Concordia University

P.199 Modeling the influence of drinking water quality on residential property value
Paskevicius G, Schmitt K*
Concordia University

P.200 Stakeholder mental models of port seismic risk: a case study of two high-hazard ports
Bostrom A, Scharks T, Reimann-Garretson L, Rex G
University of Washington

P.201 Recreationists and exposure to ozone in two Los Angeles communities
Winter PL, Padgett PE, Roansville T
USFS, Pacific Southwest Research Station

P.202 Perception and Measurement of Climate and Climate Impacts Among the Rural Poor in Vietnam
Callen AC, Anderson CL
Evans School of Public Affairs, University of Washington, Seattle
Tuesday

10:30 AM - Noon
Pacific Concourse K
T2-B Symposium: Part II: Applications - Recent Efforts for Advancing the Risk-Informed Decision Making System in the FDA Foods Veterinary Medicine (FVM) Program
Chair: Barry Hooberman, Aylin Sertkaya

10:50 am
T2-D.2
Examining public values, risk perceptions and acceptability of energy futures using an innovative online trade-off tool
Domski CC, Pickson N, Spence A
Cornell University, National Renewable Energy Laboratory

10:50 am
T2-D.3
Errors of judgment: the effects of survey construction on public opinion of nanotechnology and what they mean for scientists and policymakers
Mokhtari A, Bowles E, Beaulieu S, Little K, Oryang D, Dennis S
RTI International, US Food and Drug Administration

11:10 am
T2-D.4
A study of risk perception in different methods: comparing internet survey and face to face survey
Aoyagi M
National Institute for Environmental Studies, Japan

10:30 AM - Noon
Pacific Concourse F
T2-D Research Methods
Chair: Virna Gutierrez

10:30 am
T2-D.1
Using perception analyzers to measure uncertainty in risk messages
Steinhardt J, Esco GM
Cornell University

10:50 am
T2-D.2
Corporate reputation in times of social media: from scarce clouds to the perfect storm
Hosseinali-Mirza V, de Marelis-Warin N, Warin T
École Polytechnique de Montréal and CIRANO

11:10 am
T2-D.3
Making the most of new media for risk communication
Dunn A J
Office of Environmental Health Hazard Assessment

11:30 am
T2-D.4
The influence of social media on risk perception
De Marelis-Warin N, Peygner I
École Polytechnique de Montréal

11:30 AM - Noon
Pacific Concourse G
T2-E Social Media
Chair: Gina Esco

10:30 am
T2-E.1
The role of social media as a trusted risk communication tool
Pieters S, Van Asche T, Marynissen H
PM, Cranfield University

10:50 am
T2-E.2
A QRA on the change in the likelihood of rabies introduction into the UK as a consequence of adopting the existing harmonised community rules for the non-commercial movement of pet animals
Goddard AD, Donaldson NM, Horton DL, Fooks AR, Snary EL
Animal Health and Veterinary Laboratories Agency

10:50 am
T2-E.3
Exploring microbial contamination in beef slaughter facilities
Hartnett E, Wilson M, Poda G
Risk Sciences International, Ottawa, Canada

11:10 am
T2-E.4
Risk based multiple-microbial criteria for Listeria monocytogenes, Salmonella spp and Shiga toxin-producing E. coli in raw milk soft cheese
Perin F, Tenenhaus-Azaza F, Saana M
ANSES, CNIEL

11:30 am
T2-E.5
A simulation model to predict public health risks of pathogens in a Canadian food distribution system
Public Health Agency of Canada
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Location</th>
<th>Chair/Co-Chairs</th>
<th>Presenters</th>
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<tr>
<td>10:30 AM</td>
<td>T2-G Symposium: Risk Analysis within the Department of Defense: Methods, Successes and Opportunities for Advancement</td>
<td>Pacific Concourse I</td>
<td>Benjamin Trump</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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<tr>
<td>10:30 AM</td>
<td>T2-J.2 Long-term impacts of climate change on hurricane activity and power system reliability in hurricane-prone regions</td>
<td>Pacific Concourse L</td>
<td>Nagehi R, Guikema SD, Quiring SM, Johns Hopkins University, SMQ, Texas A&amp;M University</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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<tr>
<td>11:00 AM</td>
<td>T2-J.3 Risk and decision framework for offshore wind farms in hazardous areas</td>
<td>Pacific Concourse L</td>
<td>Stael A, Guikema SD, Johns Hopkins University</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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<tr>
<td>10:30 AM</td>
<td>T2-J.4 Towards a theory of regulatory cost perception, part 1: main results from a survey of life-saving tradeoffs with uncertainty in regulatory costs and interindividual variation in cost burden</td>
<td>Pacific Concourse L</td>
<td>Finkel AM, Johnson BB, Finkel AM, Johns Hopkins University, SMQ, Texas A&amp;M University</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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<td>10:30 AM</td>
<td>T2-J.5 A VSLY approach for evaluating welfare impacts of public health policies</td>
<td>Pacific Concourse L</td>
<td>Johnson BB, Bell ML, Johns Hopkins School of Public Health</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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<td>10:30 AM</td>
<td>T2-K.1 The state can’t fail! Accounting for the limited diffusion of risk-based approaches in France and Europe</td>
<td>Pacific Concourse O</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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<tr>
<td>10:30 AM</td>
<td>T2-K.3 King Canute vs. the little Dutch boy: nature, national identity, and the limits of risk-based management of flooding in the UK and the Netherlands</td>
<td>Pacific Concourse O</td>
<td>Borjesson M, Enander AE, Linkov I (The University of Michigan, Carnegie Mellon University, US Army Corps of Engineers)</td>
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Tuesday

1:30 - 3:00 PM  Pacific Concourse D
T3-A Ecological Risk Assessment I
Chair: Greg McDermott
1:30 pm  T3-A.1
Potential risks to ecological receptors posed by hydraulic fracturing fluids in Australia
Jokesy T, Goulding N, Benus C.
EHS Support, Inc., CJF Consulting LLC

1:50 pm  T3-A.2
Ecological risk assessment of coal seam gas hydraulic fracturing in Australia
Australian Government Department of Agriculture Fisheries and Forestry

2:10 pm  T3-A.3
Methodologies to support Australia’s carbon farming initiative
Christian R.

2:30 pm  T3-A.4
Quantitative ecological risk assessment of industrial accidents: the case of oil ship transportation in coastal tropical area at Northeastern Brazil
Duarte HO, Droquet EL, Araújo M, Teixeira SF
Universidade Federal de Pernambuco
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<td>1:30 - 3:00 PM</td>
<td>T3-G Game Theory and Randomization</td>
<td>Pacific Concourse I</td>
<td>Chair: Milind Tambe</td>
<td>1:30 pm T3-G.1 TRUSTS: Scheduling Randomized Patrols for Fare Inspection in Transit Systems</td>
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<td>T3-H Shuffling the Deck on Chemical Risk Assessment</td>
<td>Co-Chairs: Rekha Putzrath, George Woodall</td>
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<td>1:30 pm</td>
<td>T3-H.1</td>
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<td>Cumulative risk assessment; transforming traditional risk methods</td>
<td>Williams PRD, Dotson GS, Maier A E Risk Sciences, LLP</td>
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<tr>
<td>1:50 pm</td>
<td>T3-H.2</td>
<td></td>
<td>Is dose addition really useful for mixture risk assessment?</td>
<td>Hertzberg RC, Biomathematics Consulting</td>
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<td>2:10 pm</td>
<td>T3-H.3</td>
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<td>When mixture models collide</td>
<td>Putzrath RM, Navy and Marine Corps Public Health Center, US Navy</td>
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<td>2:30 pm</td>
<td>T3-H.4</td>
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<td>Aggregate risk assessment of polycyclic aromatic hydrocarbons in urban human settlement environment</td>
<td>Linyn X, Xin S, Beijing Normal University, P.R., China</td>
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<tr>
<td>1:30 - 3:00 PM</td>
<td>T3-I Topics in Critical Infrastructure Risk Modeling</td>
<td>Pacific Concourse M</td>
<td>Chair: Rapiq Saat</td>
<td>1:30 pm T3-I.1 Analysis of major risk factors for passenger trains on freight rail corridors</td>
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<td>T3-I.2 Analyzing risks to highway bridge systems-of-systems through model-based precursor modeling framework</td>
<td>Saat MR, Cambron B, Barkan C, University of Illinois at Urbana-Champaign</td>
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<tr>
<td>1:30 - 3:00 PM</td>
<td>T3-J Symposium Part I: Unpacking to Advance Governance of Synthetic Biology Applications</td>
<td>Pacific Concourse N</td>
<td>Chair: Sally Kane</td>
<td>1:30 pm T3-J.1 Application of risk-analytical methods in governance contexts: cases of synthetic biology for agriculture and the environment</td>
</tr>
<tr>
<td>1:30 pm</td>
<td>T3-J.2</td>
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<td>What can databases containing applications, products and bio bricks do to inform risk governance strategies of synthetic biology?</td>
<td>Kuehn T, Woodrow Wilson International Center for Scholars</td>
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<td>1:30 - 3:00 PM</td>
<td>T3-K Trench Models &amp; Vapor Intrusion</td>
<td>Pacific Concourse O</td>
<td>Chair: Pamela Williams</td>
<td>1:30 pm T3-K.1 Estimating exposure concentrations for trench workers from vapors emanating from soils and groundwater using computational fluid dynamics modeling</td>
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<td>1:30 pm</td>
<td>T3-K.2</td>
<td></td>
<td>Calculating inhalation exposures for utility workers at contaminated sites</td>
<td>Custance R, Heynes O, Villaroman C, Eittinger R, Geosyntec Consultants</td>
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<td>1:30 - 3:00 PM</td>
<td>T3-K.3</td>
<td></td>
<td>The use of multiple lines of evidence to identify an indoor air source of volatile constituents</td>
<td>Sager SL, Frizzell A, Darby T, Davis A, Shirley P, ARCADIS US, Inc.</td>
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<td>2:30 pm</td>
<td>T3-K.4</td>
<td></td>
<td>Indoor air exchange rates in developing countries: a pilot study in rural Peru</td>
<td>Williams PRD, Unice K, E Risk Sciences, LLP, ChemRisk</td>
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<td>3:30 pm</td>
<td><strong>T4-A Symposium: Dietary Exposure Assessment in Regulatory Decision Making</strong></td>
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<td><strong>Chair:</strong> Jannari R. Srinivasan</td>
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<td>3:30 pm</td>
<td>T4-A.1 Development of a method for estimating long-term intake of foods and nutrients</td>
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<td>Berry J, Murthy M, Safford C, Bi X Industry</td>
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<td>3:50 pm</td>
<td>T4-A.2 Databases from what we eat in America, NHANES for use in dietary exposure assessments</td>
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<td>Mudigh AF, Martin CL, Bowman SA, Montville JB</td>
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<td>4:10 pm</td>
<td>T4-A.3 How EPA uses dietary data for exoures assessments of pesticide residues in foods with an updated consumption database in publically available dietary exposure model</td>
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<td>Hrdy D, EPA/Office of Pesticide Programs</td>
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<td>4:30 pm</td>
<td>T4-A.4 Exposure to furan from irradiated foods</td>
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<td>4:50 pm</td>
<td>T4-A.5 Assessment of sodium intake among the US population</td>
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<td>Cogswell ME, Wang CY, Pfiffer CM, Loria CM</td>
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<td>Centers for Disease Control and Prevention and National Institutes of Health</td>
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<td>3:30 pm</td>
<td><strong>T4-B Decision Making in Food and Medicine</strong></td>
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<td><strong>Chair:</strong> Marc Walderhang, Richard Forshee</td>
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<td>3:30 pm</td>
<td>T4-B.1 A probabilistic risk assessment framework for modeling risk in global drug supply chain</td>
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<td>Rahaman F, Kazarini R, Urban J, US Food and Drug Administration</td>
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<td>3:50 pm</td>
<td>T4-B.2 Multi-criteria decision analysis for prioritization of clinical trial inspections</td>
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<td>Okawesil P, Rahaman F, Kasim S, Food and Drug Administration</td>
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<td>4:10 pm</td>
<td>T4-B.3 Effect of blood use protocols on the day-on-hand supply using a stock and flow simulation of the U.S. blood supply that incorporates ABO +/- blood types</td>
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<td>Simonetti A, Walderhang M, Center for Biologics Evaluation &amp; Research, US FDA</td>
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<td>4:30 pm</td>
<td>T4-B.4 Risk management during a highly pathogenic avian influenza outbreak: using simulation models to inform decisions on egg industry product movement and potential recalls during animal health emergencies</td>
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<td>United States Department of Agriculture, University of Minnesota</td>
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<td>4:50 pm</td>
<td>T4-B.5 Estimating the risks and benefits of home-use HIV tests</td>
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<td>Forshee RA, Cowan E, Hoffman H, Simonetti A, Yang H</td>
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<td><strong>T4-C Poster Platform: Supply Chain Management: Challenges and Solutions</strong></td>
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<td><strong>Chair:</strong> Igor Linken, Zad Collier</td>
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<td>T4-C.1 Supply chain risk management: tools and methods</td>
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<td>Collier ZA, Linken I, US Army Corps of Engineers, Engineer Research and Development Center</td>
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<td>T4-C.2 The impact of supply chain disruptions on imports and exports to the United States economy</td>
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<td>Beng B, REMI</td>
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<td>T4-C.3 A simulation of severe international supply chain disruptions</td>
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<td>MakKenzie CA, Barker K, Santos JR, Naval Postgraduate School</td>
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<td>T4-C.4 Risk management during a highly pathogenic avian influenza outbreak: using simulation models to inform decisions on egg industry product movement and potential recalls during animal health emergencies</td>
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<td>Weaver JT, Malladi S, Close TL, Bjork KB, Halvorson DA</td>
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<td>United States Department of Agriculture, University of Minnesota</td>
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<td>T4-C.5 Radiological and nuclear terrorism risk to the global supply chain</td>
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<td>T4-C.6 Global pharmaceutical supply chain: information gaps and challenges</td>
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<td>Claycamp HG, US FDA, Office of Foods, Center for Veterinary Medicine</td>
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<td>T4-C.8 Modeling market dynamics to inform risk assessment and decision-making for critical materials</td>
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<td>Paulozzi C, Field F, Alonso E, Keshav R, Roth R, Massachusetts Institute of Technology</td>
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<td>3:30 pm</td>
<td><strong>T4-D Symposium: Challenges in Developing and Assessing Tobacco Control Regulations</strong></td>
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<td><strong>Chair:</strong> Kevin Hammager</td>
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<td>T4-D.1 Reporting harmful and potentially harmful constituents in tobacco products</td>
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<td>Choiniere Q, Hall T, Food &amp; Drug Administration</td>
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<td>T4-D.2 International use of graphic warnings and other controls for reducing tobacco use</td>
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<td>Eyraud J, McCullough C, Eastern Research Group Inc.</td>
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<td>T4-D.3 Economic and developmental psychology perspectives on adolescent risk-taking: implications for tobacco regulation</td>
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<td>Kenkel D, Reyna V, Cornell University</td>
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<td>T4-D.4 Valuing benefits under conditions of addiction, risk misperception, and decisionmaking anomalies</td>
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<td>Robinson LA, Harvard Kennedy School</td>
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<td>T4-D.5 Perspectives on benefits analysis and future research</td>
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<td>Josuap AI, Hall T, HHS</td>
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<td>3:30 pm</td>
<td><strong>T4-E Psychological Processes</strong></td>
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<td>T4-E.1 Construing risk: testing the effects of psychological distance on risk mitigation</td>
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<td>Zwickle AK, Wilson RS, Ohio State University</td>
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<td>T4-E.2 Pseudoefficacy: a barrier to helping persons at risk</td>
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<td>Slovic P, Vastfaj D, Mayorga M, Decision Research</td>
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<td>T4-E.3 Water quality risks and dual-system processing</td>
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<td>Slagle KM (presented by Wilson R), The Ohio State University</td>
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<td>4:30 pm</td>
<td>T4-E.4 The use of the symbolic significance heuristic as a source of biased decisions</td>
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<td>Sigrist M, Sütterlin B, ETH Zurich, Switzerland</td>
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<td>T4-E.5 Understanding the chemical properties of dioxins: an important target for risk communication</td>
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<td>3:30 pm</td>
<td><strong>T4-F Risk, Development and Health</strong></td>
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<td>T4-F.1 Interagency partnership selection: disaster relief partnership as a two-stage game</td>
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<td>Cokes J, Zhuang J, State University of New York, at Buffalo</td>
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<td>T4-F.2 Food security: risks and vulnerabilities at the country-level</td>
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<td>Falconi SM, Shortridge J, Guikema SD, Zaitchik B, The Johns Hopkins University</td>
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<td>T4-F.3 The constitution of technological risks: the case of carbon nanotube</td>
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<td>Amorim T, Gasant JS, Universidade do Estado de Santa Catarina</td>
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<td>T4-F.4 National burden of disease attributable to selected risk factors: cost effectiveness of proposed environmental health interventions in a recovering Liberia</td>
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<td>Mattthew MA, Cyprus International Institute for Environmental and Public Health-Harvard School of Public Health</td>
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**Tuesday**

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<tr>
<td>3:30 - 5:10 PM</td>
<td><strong>T4-G Symposium: Applying Quantitative Risk Assessment to Meet Stakeholder Needs</strong></td>
<td>Chair: Jessica Cox</td>
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<td>3:30 pm</td>
<td>T4-G.1 Applying the CTRA for chemical industry safety and defense</td>
<td>Whittaker I, Wilson P*, Shroy B, Hawkins B, Gooding R, Kolaskowski J</td>
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<td>Battelle Memorial Institute and Department of Homeland Security (DHS), Chemical Security Analysis Center (CSAC)</td>
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<td>3:30 pm</td>
<td>T4-G.2 Applying the CTRA for food safety and defense</td>
<td>Hawkins B, Luedeke J, Buchta D, Cac J, Whitmore M</td>
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<td>4:00 pm</td>
<td>T4-G.3 Applying the CTRA to inform public health response</td>
<td>Winkiel D, Good K, Von Niederhaeuser M, Hawkins B, Cac J, Whitmore M</td>
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<td>4:00 pm</td>
<td>T4-G.4 Creation of a notional water distribution system and applying the CTRA for water safety and defense</td>
<td>Stockel DM, Hawkins BE, Nilson MD, Whitmore M</td>
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<td>4:50 pm</td>
<td>T4-G.5 Applying the CTRA to meet stakeholders needs</td>
<td>Cox J, Gooding R, Whitmore M, Winkiel D, Hawkins BE, Shroy B, Good K, Stockel DM, Luedeke J</td>
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**T4-H Symposium: Putting It All Together: Recent Developments in Risk Assessment Approaches**

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<td>3:30 pm</td>
<td>T4-H.1 Navigating risk assessment recommendations</td>
<td>Pearson ML, Toxicology Excellence for Risk Assessment</td>
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<td>US Environmental Protection Agency</td>
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<td>3:50 pm</td>
<td>T4-H.2 EPAs path forward in addressing NRC recommendations</td>
<td>Fitzpatrick JW, US Environmental Protection Agency</td>
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<td>4:10 pm</td>
<td>T4-H.3 Continuing advances via the ARA beyond science and decisions</td>
<td>Mok ME, University of Ottawa</td>
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<td>existing approaches and notes on best practices</td>
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<td>4:55 pm</td>
<td>T4-H.5 Panel discussion - putting it all together: recent developments</td>
<td>Potengger I H, Fitzpatrick J W, The Dow Chemical Company and US Environmental Protection Agency</td>
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**T4-I Symposium: Human Health and Environmental Risk Assessment Issues Related to the Exploration, Development, and Operation of Unconventional Natural Gas Plays via Hydraulic Fracturing**

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<td>3:30 pm</td>
<td>T4-I.1 Environmental impact of shale gas production: health risks</td>
<td>Driscoll J F, University of Texas at Austin</td>
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<td>associated with air contaminants and toxic chemicals</td>
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<td>3:50 pm</td>
<td>T4-I.2 Hydraulic fracturing: risk or perceived risk to water resources</td>
<td>Hanson GM, US Environmental Protection Agency</td>
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<td>Red River Watershed Management Institute Louisiana State University Shreveport</td>
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<td>4:30 pm</td>
<td>T4-I.4 Risk and synthetic biology governance: progress and opportunities</td>
<td>Robart C, Fellers C, CRA/PacWest</td>
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<td>for further engagement by the risk community</td>
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<td>4:50 pm</td>
<td>T4-I.5 Describing and minimizing risk from well construction and</td>
<td>Wang H, Duncan I, Bickle E, University of Texas at Austin</td>
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**T4-J Symposium Part II: Strategic Risk Management of Department of Defense Emerging Contaminants**

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<td>3:30 pm</td>
<td>T4-J.1 Synthetic biology: the power of metaphors in risk communicatio-</td>
<td>Prueitt RL, The George Washington University Law School</td>
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<td>Public Policy Scholar, Woodrow Wilson International Center for Scholars</td>
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<td>3:30 pm</td>
<td>T4-J.2 Regulation and synthetic biology: towards a risk based approach</td>
<td>Bailey E A, Texas A&amp;M</td>
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<td>4:10 pm</td>
<td>T4-J.3</td>
<td>Chakraborty S S, Creutzfeldt-Banda N University of Oxford</td>
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<td>An integrated framework for governing emerging technologies</td>
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<td>4:50 pm</td>
<td>T4-J.4 Risk and synthetic biology governance: progressing and opportun-</td>
<td>Pauwels E M, US Army Corps of Engineers</td>
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<td>ities for further engagement by the risk community</td>
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<td>4:50 pm</td>
<td>T4-J.5 Describing and minimizing risk from well construction and</td>
<td>Kane SM, Dana GV, Independent Consultant</td>
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**T4-K Symposium: Operation of Defense Systems**

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<td>3:30 pm</td>
<td>T4-K.1 The evolution of the Department of Defense’s program for identi-</td>
<td>Scanlon K, Barrett A, Concurrent Technologies Corporation</td>
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<td>fying, assessing and managing risks from emerging contaminants</td>
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<td>3:30 pm</td>
<td>T4-K.2 The changing landscape of chemical toxicity values and challenges presented with tri-chloroethylene</td>
<td>Scanlon K, Barrett A, Concurrent Technologies Corporation</td>
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<td>3:30 pm</td>
<td>T4-K.3 Possible impacts from increased regulatory action for deca-bromodiphenyl ether on the Department of Defense</td>
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<td>3:30 pm</td>
<td>T4-K.4 Alert without alarm: communicating risk to a broad audience of phthalate users in the Department of Defense</td>
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<td>3:30 pm</td>
<td>T4-K.5</td>
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**Emerging Contaminants**

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<td>Scanlon K, Barrett A, Concurrent Technologies Corporation</td>
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**Synthetic Biology**

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<td>T4-K.1</td>
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<td>Scannell K, Bayer Manufacturing</td>
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Wednesday

8:30 - 10:00 AM  Pacific Concourse H
W1-F New Methods for QRA: Sampling, Transfer Rates & Health Risks
Co-Chairs: Moez Sanaa, Mark Powell

8:30 am  W1-F.1
Optimal food safety sampling under a budget constraint
Powell MR
US Department of Agriculture
8:50 am  W1-F.2
Using confidence distributions to generate confidence intervals for health risks
Siegist J, Ferson S
Applied Biomathematics

9:10 am  W1-F.3
Bayesian framework for microbial transfer rates data statistical analysis
Sanaa M, Poisson S, Schaffner DW, Nauta M
ANSES, Rutgers University, Technical University of Denmark

9:30 am  W1-F.4
Traditional and ludic quantification of the meanings of hedges in numeric expressions
Applied Biomathematics and Penn State University

8:30 - 10:00 AM  Pacific Concourse L
W1-H Symposium: The Road Ahead - Developing a Research Agenda for Nanomaterial Environmental, Health and Safety Risk Assessment
Chair: Ronald White
8:30 am  W1-H.1
Environmental health and safety risks of engineered nanomaterials: a report from the National Research Council
Smet JM
University of Southern California
8:50 am  W1-H.2
The road ahead - developing a research agenda for nanomaterial environmental, health and safety risk assessment
Tinkle ST
National Nanotechnology Coordination Office

9:10 am  W1-H.3
Environmental health and safety research of engineered nanomaterials: Environmental Protection Agency perspective
Vandenbroek J, Powers C, Gillespie P
US Environmental Protection Agency
8:30 am  W1-H.1
Predicting the future impacts of potential environmental, health, and safety regulations has been an important part of the U.S. policymaking process for many years. But how accurate are these forecasts? The Obama Administration now requires that agencies conduct retrospective analyses to identify ways to improve existing regulations, as well as to enhance our ability to prospectively estimate impacts. Retrospective analysis does not eliminate the need for prediction, however, because the impacts of the policies must be compared to a counterfactual scenario. This panel brings together Federal agency staff, consultants, and scholars to discuss the challenges of conducting retrospective analysis and the implications of the findings.
Participants:
Willis H, RAND Corporation
Hammitt JK, Harvard University
Jessup A, US Department of Health and Human Services
Nardinelli C, US Food and Drug Administration
Neumann JE, Industrial Economics Incorporated
Schwartz J, New York University
8:30 am  W1-H.2
Fifteen years. But how accurate are these forecasts? The Obama Administration now requires that agencies conduct retrospective analyses to identify ways to improve existing regulations, as well as to enhance our ability to prospectively estimate impacts. Retrospective analysis does not eliminate the need for prediction, however, because the impacts of the policies must be compared to a counterfactual scenario. This panel brings together Federal agency staff, consultants, and scholars to discuss the challenges of conducting retrospective analysis and the implications of the findings.
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Hammitt JK, Harvard University
Jessup A, US Department of Health and Human Services
Nardinelli C, US Food and Drug Administration
Neumann JE, Industrial Economics Incorporated
Schwartz J, New York University

8:30 - 10:00 AM  Pacific Concourse M
W1-I From GIS to Bayesian Search: Risk Management Grab Bag
Co-Chairs: Stanley Levinson, Cameron MacKenzie
8:30 am  W1-I.1
Localization of control rooms using an MINLP approach based on accidental explosion scenarios
Rodriguez SE, Sierra LM, Gomez JM, Munoz F
Universidad de los Andes
8:50 am  W1-I.2
Using the risk paradigm to link weather to emergency management decisions
Gallegti RJ, Langy J, Mount B
Arizona State University, University of North Carolina, East Carolina University
9:10 am  W1-I.3
A Bayesian approach for construction risk analysis at Fort Missoula, Montana
FitzGerald M, Callott KM, Black CK, Barnett WS
Neptune and Company, Inc.
9:30 am  W1-I.4
A generic framework for synthesizing the societal disturbance of typhoon events
Huang T, Lee CS, Lee HC, Yang EH
National Science and Technology Center for Disaster Reduction

8:30 - 10:00 AM  Pacific Concourse N
W1-J Roundtable: Improving Risk Regulation through Retrospective Analysis
Chair: Lisa Robinson
8:30 am  W1-J.1
Overview: strengthening a public health-based National Residue Program
Dearfield KL
US Department of Agriculture
8:50 am  W1-J.2
Systematic hazard identification and updated hazard ranking algorithms
Edwards S
US Department of Agriculture
9:10 am  W1-J.3
Establishing food safety contaminant level goals for chemical contaminants in meat, poultry, and egg products
Domesle ARM
US Department of Agriculture
9:30 am  W1-J.4
Use of new hazard identification methods for sampling of chemical contaminants
Estaban E
US Department of Agriculture
10:30 AM - Noon Pacific Concourse K
W2-B Symposium: Decision Analysis Tools in Risk Assessment
Co-Chairs: Asid Mohapatra, Kelvin Baker
10:30 am W2-B.1 Human Health Assessment of Remediation Technology (HEART): a case study for application of a Decision Analytic Tool (Part II)
Sudhakar A, Dyck R, Hassaini N, Hewage K, Sadiq R, Mohapatra AK
Health Canada
10:50 am W2-B.2 Integration of life cycle assessments, risk analysis and decision analysis for sediment management
Kelly K, Bates ME, Sparrowik M, Bridges TS, Linkov I
Massachusetts Institute of Technology
11:10 am W2-B.3 Bioaccumulation Risk Assessment Modeling System (BRAMS): software for evaluating human health and ecological risks associated with contaminants in dredged material
Baker KM, Vogel JT, Tkacuk A, Giara O, Farris CN, Bridges T, Linkov I
USACE: ERDC, USEPA Region 1
11:30 am W2-B.4 The Chemical Hazards Emergency Medical Management (CHEMM) tool: application of mental models stakeholder research
Kovacs DC, Thorne S, Butte G, Chang F, Pukias J, Siegel D, Haskinn P
Decision Partners, National Institute of Child Health, Human Development

10:30 AM - Noon Pacific Concourse K
W2-C Symposium: Variability and Uncertainty in Air Quality Damage Estimates
Co-Chairs: Elizabeth Gilmore, Lindsay Ludwig
10:30 am W2-C.1 Effect of air quality model choices on damages costs
Gilmore EA, Moore A, Adams PJ
University of Maryland
10:50 am W2-C.2 Health impact versus incidence: explaining and propagating the variance
Brandt KP
University of Ottawa
11:10 am W2-C.3 Mortality effects associated with exposure to ambient PM2.5 using dynamic population modeling
Neumann J, Ludwig L, Roman H, Walsh T, Verly C, Gentle M, D’Mocker J
Industrial Economics, Inc. and United States Environmental Protection Agency
11:30 am W2-C.4 Communicating with the public following a chemical spill: a comparison of practitioner expectations and public intentions in the UK and Poland
Pearse JM
King’s College London
10:30 AM - Noon Pacific Concourse G
W2-D Symposium: Cultural Factors in Risk Perception and Communication of Crisis Situations
Chair: Brooke Rogers
11:30 am W2-D.1 Identifying vulnerabilities and communicating risks across cultures within cultures and multiple audiences within nations
Rashid S, Ohman S, Olofsson A
National University
11:10 am W2-D.2 Cultural considerations for risk communication to immigrant populations in Canada
Lamyre L, Yong A, Dimitreanu A
University of Ottawa
11:30 am W2-D.3 Energy efficient lighting: results from three pieces to understand the engineer-economics aspects, consumer perceptions of light and color and consumer decision-making models
Azevedo I
Carnegie Mellon University
11:30 am W2-D.4 Public responses to biological and radiological terrorism in Britain and Germany: A practitioner’s view
Amlit R
Health Protection Agency, UK

10:30 AM - Noon Pacific Concourse G
W2-E Symposium Part II: What Lawyers and Birds have in Common: Risk and Decisions in Coupled Human-Natural Systems
Co-Chairs: Matteo Convertino, Nik Sawe
11:30 am W2-E.1 A conditional Weibull approach to modeling the impacts of technology, weather, and sample selection on crop yield distributions: implications for federal crop insurance
Woodard JD
Cornell University
11:10 am W2-E.2 Neuroimaging of environmental valuation
Sawe N, Knutson B
Stanford University
11:30 am W2-E.3 Neuroimaging of environmental valuation
Sawe N
Stanford University
10:30 AM - Noon Pacific Concourse H
W2-F Symposium: Use of Risk Assessment to Meet the Requirements of Healthy People 2020
Co-Chairs: Michael Williams, Neal Golden
11:30 am W2-F.1 Risk assessment as a means for developing public health strategies to meet FSIS’ Healthy People 2020 Salmonella goal
Golden NJ, Williams MS, Ebel ED
Risk Assessment Division, Food Safety and Inspection Service
11:10 am W2-F.2 The magnitude of the problem
Ebel ED, Ebel ED
Centers for Disease Control and Prevention
11:30 am W2-F.3 Polymers in chain reaction screening for salmonella and enterohemorrhagic escherichia coli on beef products in processing establishments
Samanpour M
Institute for Environmental Health, Inc.
11:30 am W2-F.4 Heuristic technique for rapidly screening the effectiveness of risk management options
Williams MS, Ebel ED
Food Safety and Inspection Service, USDA
Wednesday

10:30 AM - Noon  Pacific Concourse L  W2-H Current Issues in Chemical Dose Response  Co-Chairs: George Woodall, Richard Reiss

10:30 am  W2-H.1  Non-cancer risk assessment of nickel: reference exposure levels for nickel and nickel compounds  
Brown JF, Salmon AG, Marty MA, Alceoff GV  
Office of Environmental Health Hazard Assessment, California Environmental Protection Agency

10:50 am  W2-H.2  Biological plausibility of organophosphorous insecticide epidemiologic studies  
Reiss R  Exponent

11:10 am  W2-H.3  Reporting the outcome of IARC Monograph 106: trichloroethylene and some other chlorinated compounds  
International Agency for Research on Cancer - World Health Organization

10:30 AM - Noon  Pacific Concourse M  W2-I Symposium: Advances in Risk Models for Infrastructure Systems Management  Chair: Shital Thekdi

10:30 am  W2-I.1  Harmonizing engineering practices and socio-economic modeling via strategic long-term planning models for transportation infrastructure systems  
Andrejic E, Haines YY  University of Virginia

10:50 am  W2-I.2  Risk ranking and multi-stage decision analysis for financing of energy R&D portfolios  
Hamilton M, Lambert J  University of Virginia

11:10 am  W2-I.3  Assessing the interdependencies across ‘human infrastructure’ systems in the context of disaster preparedness  
Santos JR  GWU

11:30 am  W2-I.4  Stakeholder-informed investment for risk management of infrastructure systems  
Thekdi SA  University of Richmond

10:30 AM - Noon  Pacific Concourse N  W2-J Symposium: Retrospective Regulatory Review  Chair: Linda Abbott

10:30 am  W2-J.1  Retrospective review: promises and challenges  
Dudley VE  The George Washington University

10:50 am  W2-J.2  Ending successful risk programs  
Williams RA  Mercatus Center at George Mason University

11:10 am  W2-J.3  Retrospective review of the special supplemental nutritional program for women, infants and children (WIC)  
Mojduszka E, Abbott LC  US Department of Agriculture

11:30 am  W2-J.4  Using a systems approach to retrospective regulatory review: quantifying economic impact and potential risk reduction due to cumulative regulatory actions in an agricultural watershed in Washington  
Abbott LC, Schaumb JD  US Department of Agriculture

11:50 am  W2-J.5  Criteria for evaluating the regulatory reasonableness of risk reduction programs  
Rabinovici SJ  Mills College

10:30 AM - Noon  Pacific Concourse O  W2-K Symposium: Cumulative Risk Assessment 2: International Dimensions in Combining Chemical and Non-Chemical Stressors  Chair: Bradley Schultz

10:30 am  W2-K.1  Air quality management policies that better account for social stressors  
Finn NL, Roman HR, Fulkher CM, Gentile MA, Hubbell BJ, Wesson KH, Levy JJ  US Environmental Protection Agency

11:10 am  W2-K.2  International experience in addressing combined exposures  
Mack ME  University of Ottawa

11:30 am  W2-K.3  Environmental justice and cumulative risk assessment: why it matters and what researchers can do about it  
Payne-Sturges D  US Environmental Protection Agency

11:50 am  W2-K.4  Community-level cumulative risk assessment in the USA and other countries  
Schulte BD  US Environmental Protection Agency

10:30 AM - Noon  Pacific Concourse J  W2-L Symposium: Adaptive Risk Governance for the Rapid Energy Transition in Germany  Chair: Ortwin Renn

10:30 am  W2-L.1  Governance requirements for adaptive and integrative energy policies  
Renn O  Stuttgart University

10:50 am  W2-L.2  The smart grid as black box - the role of consumers in the governance of future energy systems  
Bausche C, Orwat C  Karlsruhe Institute of Technology

11:10 am  W2-L.3  Adaptive risk governance  
Schweizer PJ  University of Stuttgart
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Pacific Concourse L  
W3-H Quantitative Models: The Chemical Risk  
Co-Chairs: Kan Shao, George Woodall

1:30 pm  
W3-H.1  
A quantitative role for zebrafish in the assessment of human developmental toxicity  
Fleming CR, Lambert JC  
US EPA

1:50 pm  
W3-H.2  
Bayesian non-parametric methods in operational risk modeling  
Rivera-Mancia ME  
McGill University

2:10 pm  
W3-H.4  
Is the assumption of normality or lognormality for continuous response data critical for benchmark dose estimation?  
Shao K, Gift JS, Setzer RW  
National Center for Environmental Assessment, US EPA

2:30 pm  
W3-H.5  
Benchmark calculation using categorical regression for multiple end-point responses  
Chen CC  
NHRJ

1:30 - 3:00 PM  
Pacific Concourse M  
W3-I Reliability Assessment for Electric Power Systems  
Chair: Alessandra Colli

1:30 pm  
W3-I.1  
An approach for reliability assessment and risk evaluation of photovoltaic systems  
Yue M, Colli A  
Brookhaven National Laboratory

1:50 pm  
W3-I.2  
A FMEA analysis for photovoltaic systems: assessing different system configurations to support reliability studies  
Colli A, Yue M  
Brookhaven National Laboratory

2:10 pm  
W3-I.3  
Increasing PRA scope for nuclear power plants: how fast? How far?  
Levinson SH  
AREVA Inc.

2:30 pm  
W3-I.4  
Analyzing societal consequences of power failures: integration of physical models and regional inoperability input-output models  
Johansson J, Svegrup L, Hazel H  
Land University

1:30 - 3:00 PM  
Pacific Concourse N  
W3-J Studies of Risk Governance Systems  
Chair: Chabane Mazri

1:30 pm  
W3-J.1  
The need for 2nd order risk management  
Saner MA  
University of Ottawa

1:50 pm  
W3-J.2  
Credibility of risk assessments  
Wiedemann PM, Boerner F  
Karlsruhe Institute of Technology, Germany

2:10 pm  
W3-J.3  
Risk analysis on GMOs: the complex overlapping of scientific, political and economic issues in the debates in Brazil  
Guivant JS  
Federal University of Santa Catarina

2:30 pm  
W3-J.4  
Comparing human health risk values across organizations  
Holman E, Gray G, Francis R  
US Environmental Protection Agency, George Washington University

1:30 - 3:00 PM  
Pacific Concourse O  
W3-K Ambient Air: Particulate Matter Exposure  
Chair: Louis Cocc

1:30 pm  
W3-K.1  
Overview and evaluation of alternative air quality exposure metrics used in air pollution epidemiological studies  
Ozgener H  
US EPA

1:50 pm  
W3-K.2  
Using dose assessment results to optimize environmental monitoring plans  
Perona R, Ryti RT, Tiller B  
Neptune and Company, Inc., Environmental Assessment Services, Inc.

2:10 pm  
W3-K.3  
Evaluation of a wildfire smoke forecast system for public health risk assessment  
Andes L, Wu F, MacWilliams M, Lu CC  
US Army Corps of Engineers San Francisco District

2:30 pm  
W3-K.4  
Warmer is healthier: effects on mortality rates of changes in average fine particulate matter (PM2.5) concentrations and temperatures in 100 U.S. cities  
Cocc L A  
Cocc Associates, University of Colorado

1:30 - 3:00 PM  
Pacific Concourse J  
W3-L Ecological Risk Assessment II  
Chair: Randall Ryti

1:30 pm  
W3-L.1  
Mapping ecological risks with a portfolio-based technique: incorporating uncertainty and decision-making preferences  
Yen Takanen D, Koch F, Dwey M, Koehler K  
Natural Resources Canada, Canadian Forest Service, USDA Forest Service, University of New Hampshire, Canadian Food Inspection agency

1:50 pm  
W3-L.2  
Informing hazardous fuels prioritization at national and regional scales  
Thompson MP  
US Forest Service

2:10 pm  
W3-L.3  
A risk and uncertainty analysis of coastal flood statistics for South San Francisco Bay  
Andes L, Wu F, La JM, MacWilliams M, Lu CC  
US Army Corps of Engineers San Francisco District

2:30 pm  
W3-L.4  
Risk assessment for non-indigenous plants for the intermountain Western United States  
Landis WG, Ayre KK (presented by Hines E)  
Western Washington University
3:30 - 5:10 PM | Pacific Concourse K
W4-B Symposium: New Directions in Risk Assessment with Roadmap for Success
Co-Chairs: Kenneth Olden, Abdel Razak Kadry
3:30 pm | W4-B.1
A ‘roadmap’ for revising IRIS: recommendations from the National Research Council
Salmon A, Marty M, Zeise L, Cal/EPA Office of Environmental Health Hazard Assessment
3:30 pm | W4-B.2
The IRIS Program - a key resource for public health risk assessment
Janssen SJ
3:30 pm | W4-B.3
Re-tooling of IRIS: what progress has actually been made over the last 20 months?
Becker RA, Pottinger LH, Fensterheim RJ, Wise K
American Chemistry Council
3:30 pm | W4-B.4
NGO perspective on IRIS progress and process
Janssen SJ
Natural Resources Defense Council (NRDC)
3:30 pm | W4-B.5
EPA's path forward for the Integrated Risk Information System Program
Clark B, Deener K, Cogliano V, Kadry A
US Environmental Protection Agency, Washington, DC

3:30 - 5:00 PM | Pacific Concourse E
W4-C Symposium: India at Risk: Capacity, Institutions and Expertise
Chair: Ravi Rajan
3:30 pm | W4-C.1
“One in infinity”: assessing nuclear risks in India
Ramana MV
Princeton University
3:30 pm | W4-C.2
India at risk - the perception and governance of risks in India
Moor R
Indian Institute of Management Bangalore
4:10 pm | W4-C.3
Missing expertise: accountability, capacity, and risk mitigation infrastructures in India
Rajan SR, Rajan SR
University of California, Santa Cruz
4:10 pm | W4-C.4
Psycho-social media analysis of threat coping expressions on twitter during a food crisis
Gaspar RF, Gogain SL, Seilt CB, Lima ML
Instituto Universitário de Lisboa, IST-CTE - IUL, Centro de Investigação e Intervenção Social (CIS)
4:10 pm | W4-C.5
Determinants of duration and thoroughness of information seeking: insights from online search behaviour
Kutscherreuter M, Hilverda MD
University of Twente
4:30 pm | W4-C.6
Informing risk communication practices through the analysis of user-generated content on online media websites
Regan A
University College Dublin, Ireland

3:30 - 5:00 PM | Pacific Concourse F
W4-D Symposium: Novel Online Tools for Risk Communication
Research: Applications in Food Risk Communication
Chair: Julie Barnett
3:30 pm | W4-D.1
Deliberation about the risks and benefits of red meat: what do we learn from people’s questions?
Barnett J, Marcus A
Brunel University, UK
3:30 pm | W4-D.2
Psycho-social media analysis of threat coping expressions on twitter during a food crisis
Gaspar RF, Gogaine SL, Seilt CB, Lima ML
Instituto Universitário de Lisboa, IST-CTE - IUL, Centro de Investigação e Intervenção Social (CIS)
3:30 pm | W4-D.3
Innovative approaches to online tools for risk communication
Reiter J, Tenzer D

3:30 - 5:00 PM | Pacific Concourse G
W4-E Career Panel
Chair: TBD
3:30 pm | W4-E.1
Evaluating the chrysotile fiber adherence to clothing exposed to known airborne asbestos concentrations before and after handling and shaking out of the clothing
ChemRisk LLC
3:30 pm | W4-E.2
Integrating occupational health impacts into life cycle assessment
Scanlon K, Gray G, Francis R, Lloyd S, LaPuma P
The George Washington University, School of Public Health and Health Services, Department of Environmental and Occupational Health
3:30 pm | W4-E.3
Cumulative chrysotile fiber exposures from sanding historical joint compound formulations: Inter- vs. intra-individual variability
Sheehan PV, Bogen KT
Exponent
3:30 pm | W4-E.4
Evaluation of chrysotile fiber adherence to clothing after exposure to known airborne asbestos concentrations before and after handling and shaking out of the clothing
ChemRisk LLC

3:30 - 5:00 PM | Pacific Concourse H
W4-F Occupational Exposure & Health
Chair: Kelly Stanlon
3:30 pm | W4-F.1
Undeclared and unreported: addressing gaps and improving data quality in hazmat transportation
Locks MS, Teicher P
Pipeline and Hazardous Materials Safety Administration, USDOT
3:30 pm | W4-F.2
Risk management tools to maximize the effectiveness of dangerous goods regulatory activities
Oliver GM, Samwura F, Tardif C
Transport Canada
3:30 pm | W4-F.3
Cumulative chrysotile fiber exposures from sanding historical joint compound formulations: Inter- vs. intra-individual variability
Sheehan PV, Bogen KT
Exponent
3:30 pm | W4-F.4
Seaport security (PortsSec): The next phase - incidents, special events and risk
Orozco M, Maya I, Lennon E, Catherie S, Salazar D, Southwell C, Chen J, Ioannou P, Yanbo Z, Buskow V
University of Southern California

3:30 - 5:00 PM | Pacific Concourse I
W4-G Symposium: Risks of Transportation Disruptions and Dangerous Goods
Chair: Cameron MacKenzie
3:30 pm | W4-G.1
Undeclared and unreported: addressing gaps and improving data quality in hazmat transportation
Locks MS, Teicher P
Pipeline and Hazardous Materials Safety Administration, USDOT
3:30 pm | W4-G.2
Risk management tools to maximize the effectiveness of dangerous goods regulatory activities
Oliver GM, Samwura F, Tardif C
Transport Canada
3:30 pm | W4-G.3
Risk-management self-assessment tool for hazardous materials carriers
Peignier I, de Marcellis-Warin N, Tripinier M, Denortier A
CRAINO
3:30 pm | W4-G.4
Seaport security (PortsSec): The next phase - incidents, special events and risk
Orozco M, Maya I, Lennon E, Catherie S, Salazar D, Southwell C, Chen J, Ioannou P, Yanbo Z, Buskow V
University of Southern California
3:30 - 5:10 PM  
Pacific Concourse M  
W4-I Simulation

Approaches for Assessing Critical Infrastructure Vulnerability to National Hazards  
Chair: Rachel Davidson

3:30 pm  
On the correlation of hurricane wind and surge  
Liu Ning  
Princeton University

3:50 pm  
Evaluation of a community-level flood damage assessment and its applicability to extreme events: implications for future adaptation decisions  
Camp JV, Abkowitz MJ  
Vanderbilt University

4:10 pm  
Quantifying the catastrophe risk of hurricanes to offshore wind power  
Rose SM, Apt J  
Carnegie Mellon University

4:30 pm  
Evaluating the unconditional probability of exceeding network-level performance levels in highway bridge networks subject to seismic hazards  
Roekedduin K, Hernandez-Figueroa I, Duenas-Osorio L  
Rice University

4:50 pm  
Modeling insurer-homeowner interactions in managing natural disaster risk  
Kesete Y, Gao Y, Peng J, Davidson RA, Nozik LK, Kruse J  
Cornell University, University of Delaware, East Carolina University

3:30 - 5:10 PM  
Pacific Concourse N  
W4-J Emerging Technologies: Nano to Synthetic Bio

Chair: Christian Beaudrie

3:30 pm  
Tracking media and internet coverage of nanotechnology’s risks over the years  
Friedman SM, Egolf BP  
Lehigh University

3:50 pm  
Strategies to develop occupational exposure limits and hazard bands for nanomaterials  
Kuempel ED  
National Institute for Occupational Safety and Health

4:10 pm  
Nanotechnology EHS considerations for waste management  
Sheremet L  
National Institute for Nanotechnology

4:30 pm  
Emerging technologies: friend or foe? Can structured expert judgment help deciding?  
Flari V, Neslo R, Chaudhry Q, Hugo S, Kerrins G, Blackburn J, Hart A  
Government, Academia

4:50 pm  
Changing chasses and inventing elements: developing a combined systems biology and engineering approach to designing complex function in cells  
Arkin AP  
University of California Berkeley, Lawrence Berkeley National Lab
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