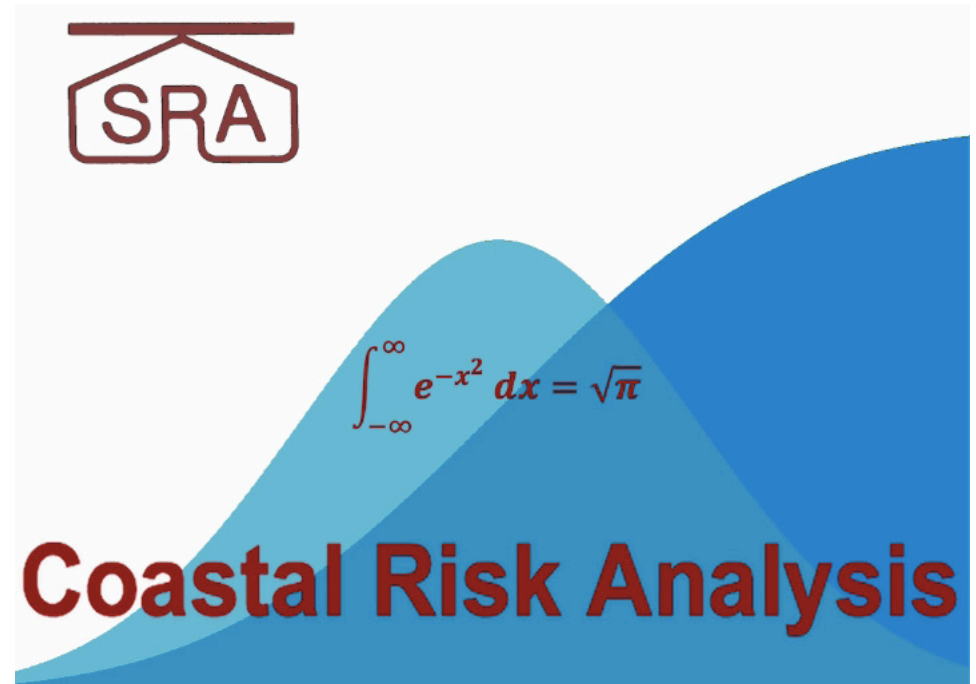


Register online and check out the complete program at www.sra.org



Society for Risk Analysis

Risk Analysis: Coastal Risk Analysis



2011 Annual Meeting

December 4-7, 2011

Charleston Area Convention Center

Embassy Suites North Charleston-Airport Hotel

Charleston, South Carolina

Preliminary Program &
Registration Packet

Society For Risk Analysis Annual Meeting

2011 Registration Packet

Join us in Charleston, South Carolina

This year the SRA Annual Meeting will take place at the Embassy Suites North Charleston Airport Hotel & Charleston Area Convention Center. The meeting will include several plenary sessions focused on the theme of Risk Analysis: Coastal Risk Analysis. It will also include technical sessions in the form of oral presentations, posters, and poster-platforms. Additional information about the meeting, including detailed workshop pages, online registration, as well as online reservations for the Embassy Suites North Charleston Airport Hotel (SRA Headquarters Hotel) is available at www.sra.org.

Risk Analysis Meeting

Risk Analysis, including risk perception, risk assessment, risk management, and risk communication, represents an interdisciplinary field that is the foundation of decision making across a myriad of disciplines. The annual meeting of the Society for Risk Analysis (SRA) brings together nearly 750 international scientists and practitioners from a wide range of disciplines who share an interest in risk analysis. Representing academia, government, industry, NGOs, private firms, and themselves, SRA members recognize the value of diverse perspectives and a shared commitment to high quality risk analysis methodology and practice.

See it all

Make your plans to attend the entire meeting, from workshops and the opening reception on Sunday (December 4, 6:00-7:30 PM) to the T-Shirt Giveaway/Wine & Cheese Reception on Wednesday (December 7, 5:00-6:00 PM). The meeting includes lunch all three days, three Plenary sessions, and the exciting Poster Reception on Monday evening (6:15-8:15 PM).

Plenary Sessions on Monday and Tuesday begin at 8:30 AM so plan to arrive early!

Calling all authors and exhibitors

At the SRA exhibition, attendees have a first-hand opportunity to examine, discuss, and learn from the products and services on display. To request a booth at the SRA exhibition, or information about displaying a book on the publications table, contact Erin Johnson at SRA Headquarters, (703) 790-1745, email: EJohnson@BurkInc.com or go to www.sra.org and download the exhibit information.

Exhibit schedule:

Monday, December 5	Noon-4:00 PM
Tuesday, December 6	9:45 AM - 4:00 PM
Wednesday, December 7	9:45 AM - Noon

Got a late breaking abstract?

You can submit a poster abstract until Monday, October 17, 2011, for consideration in the Monday evening poster session. Submit them to: <http://birenheide.com/sra/2011AM/lateposters.php>.

Registration

On-site check-in and registration hours for the meeting:

Sunday, December 4	4:00 - 6:30 PM
Monday, December 5	7:00 AM - 5:30 PM
Tuesday, December 6	8:00 AM - 5:30 PM
Wednesday, December 7	8:00 AM - 5:30 PM

All events take place at the Charleston Area Convention Center, which is connected to the Embassy Suites by an indoor skybridge.

Lunchtime Events

Charleston Area Convention Center

MONDAY - 12:00-1:30 PM, Business Meetings for Specialty Groups All participants should pick up their box lunches (included in the registration fee) and take them to the rooms designated for each of the specialty groups (or to a large open area where they can enjoy the opportunity to network). All of the specialty groups will hold their business meetings during the Monday lunch break.

TUESDAY - Don't miss the annual SRA Awards Luncheon and Business Meeting, which will include the announcement of all SRA awards and the 5 Best Poster Award winners from Monday's Poster Reception! Luncheon is included in your registration fee.

WEDNESDAY - All participants should plan to attend the Plenary Luncheon included in the registration fee.

Evening Events

SUNDAY - Welcome Reception, 6:00-7:30 pm

MONDAY - Poster Reception

This year's meeting will feature a Poster Reception on Monday evening from 6:15 to 8:15 PM, with food and cash bar. During this time, attendees will have the opportunity to vote for the 5 Best Posters. Posters will be on display starting at noon and poster presenters will be at their posters for questions and discussion during the Reception. Don't miss it!

TUESDAY - Career Fair, 5:00-6:30 pm

See page 4 for details.

WEDNESDAY - T-Shirt Giveaway/Wine & Cheese Reception (Cash Bar), 5:00-6:00 pm, *Registration Area, Charleston Area Convention Center*

Registration Information

REGISTER ONLINE: at www.sra.org

REGISTER BY FAX: Fax your completed form with credit card information to (703) 790-2672 (Purchase orders not accepted for workshops)

REGISTER BY MAIL: Mail your completed form with payment to:
SRA Headquarters

1313 Dolley Madison Blvd., Suite 402, McLean, VA 22101

Mail completed registration form with check, purchase order or credit card information. You are considered registered when full payment or purchase order has been received.

CANCELLATION POLICY: All cancellations are subject to a \$50 service charge. Cancellations must be in writing to the SRA Secretariat.

Cancellation letters received by **November 4** will be refunded total registration fees minus the \$50 service charge and will be refunded after the meeting. No refunds will be issued on cancellations received after **November 4**. Please note - speakers will not receive a refund if they cancel.

DIETARY RESTRICTIONS: Please note any dietary restrictions on the forms when you register.

Committee Meetings and Events

Workshops

Sunday, 12/4, Full Day - 8:30 AM-5:30 PM; Half Day Morning - 8:00 AM-12:00 PM; Half Day Afternoon - 1:00-5:00 PM.

SRA Council Meetings

Sunday, 12/4, Noon–5:00 PM and Tuesday, 12/6, 6:30-10:00 PM

SRA Welcome Reception – (Cash Bar)

Sunday, 12/4 – 6:00–7:30 PM

New Member and Fellows Breakfast

Monday, 12/5 - 7:00-8:00 AM

All SRA Fellows as well as 2011 and 2012 New Members (badges with a New Member ribbon) are welcome to attend.

Specialty Group Meetings

Monday, 12/5 - 12:00-1:30 PM

All Specialty Group Meetings will take place during lunch time on Monday, December 5, 2011. Pick up your box lunch near the Registration desk and attend the meeting(s) of your choice.

12:05-12:30 pm

Dose Response, *Room 6*

Economics & Benefits Analysis, *Room 7*

Security & Defense, *Room 8/9*

Risk Communication, *Room 10*

12:35-1:00 pm

Ecological Risk Assessment, *Room 6*

Exposure Assessment, *Room 7*

Risk, Policy & Law, *Room 8/9*

Risk & Development, *Room 10*

1:05-1:30 pm

Decision Analysis & Risk, *Room 6*

Emerging Nanoscale Materials, *Room 7*

Engineering & Infrastructure, *Room 8/9*

Biological Stressors Risk Assessment, *Room 10*

Poster Reception

Monday, 12/5 – 6:15–8:15 PM

T-Shirt Giveaway/Wine & Cheese Reception - (Cash Bar) Registration Area, Charleston Area Convention Center

Wednesday, 12/7 – 5:00–6:00 PM

Everyone who attends will receive a free T-shirt!

Hotel Reservations

Embassy Suites North Charleston - Airport/Hotel

5055 International Boulevard

North Charleston, SC 29418

Phone: 843-747-1882; FAX: 843-747-1895

For reservations go to www.sra.org and follow the links from the annual meeting page to make your reservations online using the group code, OR call 843-747-1882. The daily room rates for this meeting are: single/double - \$139. Room rates for this meeting are available from December 2-8, 2011, subject to availability. SRA has reserved a block of rooms at the meeting rate, but once this block of rooms is sold out the hotel may offer any remaining rooms at the prevailing rate, so reserve your room early. The cut off date for this rate is November 11, 2011, or until the SRA room block is sold out.

From the airport: Transportation from and to the airport to the Embassy Suites is provided by a 24 hour courtesy shuttle. Use the phone in the baggage claim area of the airport to call for the shuttle. The hotel rate includes a complimentary hot made-to-order breakfast in the morning, and wine and hors d'oeuvres each evening. Parking is complimentary as well. The airport is 1 mile from the Embassy Suites.

...Back by Popular Demand...Back by Popular Demand...Back by Popular Demand...

SRA Career Fair

Career Fair, Tuesday, 5:00-6:30 pm

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 resumes and a winning attitude. Remember, this is an employer's first impression of you, so treat this event like you would a job interview.

Resumes and Job Opportunities

The Annual Meeting offers an opportunity to connect Jobs with Job Seekers. Please send your available job postings via email to David Drupa at DDrupa@BurkInc.com. If you would like to submit a blind resume, please request a form by emailing David Drupa at DDrupa@BurkInc.com.

Job postings and blind resumes will be posted at the meeting and will be held at SRA headquarters for 6 months after the meeting.

Sponsorship Opportunities

To have your Company's logo in the Final Program, and a table at this year's Career Fair, contact Erin Johnson at 703.790.1745 extension 29, or by email at EJohnson@BurkInc.com. Print the Career Fair registration form at www.sra.org/events_2011_meeting.thp.

Workshops - Sunday, December 4

Student Workshop Registration - when registering for the entire meeting, you can elect to take ONE workshop at the reduced rate of \$50. Limited to the first five in each workshop. You MUST apply ONLINE for this reduced rate.

Full Day Workshops – SUNDAY 8:30 am – 5:30 pm (Lunch is on your own, 12:30-1:30 pm)

WK1: Benchmark Dose Modeling (BMD) Analysis – An Introduction to BMD Methods and Application of EPA’s Benchmark Dose Software

Organizer: J. Allen Davis

\$300 preregistration; \$350 onsite registration

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>.
http://epa.gov/ncea/bmds/handson_training/index.htm

WK2: Advancing Mechanisms of Gut Interactions Informing Microbial Risk Assessment

Organizer: Peg Coleman

\$300 preregistration; \$350 onsite registration

In the decade since the first SRA workshop on mechanistic modeling of host-pathogen interactions in the gastrointestinal tract, a paradigm shift arose that complicates microbial dose-response assessment for enteric pathogens: expansion of knowledge of the gut ecosystem to include not just human mucosal cells, but the indigenous microbiota and its collective genome, the microbiome. The goal of the workshop is to promote a paradigm shift to an ecosystem approach for microbial risk assessment that incorporates data on human microbiome interactions linked to stable pathways (health) or perturbed systems (disease). International experts will introduce new concepts and supporting evidence from metagenomic studies using high throughput sequencing methods rather than pure culture methods of past generations of medical microbiologists. Microbial risk analysts will be challenged to identify not just the two traditional metrics (pathogen dose and host response) as in simple empirical dose-response models of disease outcomes, but also the underlying interactions of the complex gut ecosystems that cause health and disease. Participants will consider how to scale data across spatial scales (genetic, molecular, tissue, organ, individual, subpopulation, population) for more coherent microbial dose-response assessment that incorporates innate and adaptive immune interactions of healthy ecosystems and immunomodulation by the microbiota in health and disease.

WK3: Risk, Robustness and Info-Gaps

Organizer: Yakov Ben-Haim

\$325 preregistration; \$375 onsite registration

Risk analysts use measurements and science-based models to design systems, evaluate reliability, and make plans and policies. However, models may be simpler than reality, causal factors may be unknown, measurements may err or be incomplete, and systems may change over time in unknown ways. Probability is useful for modeling and managing some of these uncertainties. However some uncertainties are info-gaps: disparities between what is known and what needs to be known in order to make good decisions. For instance, we sometimes do not know the correct probability distribution or all of the relevant physical mechanisms such as non-linearities or time dependencies. This course studies info-gap theory for modeling and managing uncertain-

ties in risk analysis and related decision problems. The course emphasizes the added value of an info-gap analysis as well as its limitations, and the integration of info-gap theory with probabilistic analysis. This course is built around lectures presenting a series of simple examples taken from a wide range of applications in the field of risk analysis, reliability assessment and policy selection. The examples illustrate the integration of info-gap robustness analysis in a variety of other decision strategies. The end of the workshop is devoted to exercises which help the participants get a hands-on feel for info-gap analysis. Students, researchers, and analysts involved in risk analysis, reliability assessment and policy selection will find this workshop useful.

<http://info-gap.com/content.php?id=70>

WK4: Cumulative Risk Assessment: Grouping and Analyzing Combined Chemical, Biological, Physical and Socio-Economic Stressors

Organizer: Linda K. Teuschler

\$349 preregistration; \$399 onsite registration

Public interest has been growing regarding the health effects of environmental exposures and cumulative impacts from multiple chemical and non-chemical (e.g., microbes, noise) stressors on communities. Initiating factors for a cumulative risk assessment (CRA) could include: contaminants in environmental media from multiple pollutant sources; environmental quality metrics, e.g., pollution levels; exposure metrics, including biomonitoring; public health effect metrics; and ecosystem impacts. CRA can be defined as an analysis, characterization, and possible quantification of the combined risks to human health or the environment from multiple agents or stressors. In addition, population and individual vulnerability factors are being recognized as important to CRA, such as diet/nutritional status, behaviors, genetic traits, socio-economic status, sensitivities, and psychosocial stress. To meet this challenge, research efforts are ongoing to characterize exposure, health effects and risks from combinations of chemical, physical, biological and socio-economic stressors. This workshop highlights concepts, methods, and resources for scoping and conducting a population-based CRA. A central theme is integrating exposure information and population characteristics during CRA planning and scoping based on initiating factors. In the exercises, chemical, biological and physical stressor groups are formed using exposure and toxicity factors and are linked with vulnerability factors characteristic of the exposed population, including socio-economic stressors; these groups are used to develop risk characterization information. Methods for estimating human health risks are discussed

and applied, including epidemiologic approaches and methods based on existing chemical mixtures risk assessment guidance and toxicological data. Teaching methods include lectures and hands-on exercises. Participants are asked to bring a calculator.

WK5: Get More from Your Models- Use Sensitivity Analysis

Organizer: Amir Mokhtari

\$245 preregistration; \$295 onsite registration

This workshop will answer key questions faced by those who conduct, manage, or review probabilistic and sensitivity analysis of risk models. When should you perform sensitivity analysis? What are the typical simulation techniques and software packages? What are the roles of uncertainty and sensitivity analyses as value added techniques in risk assessment? How do you prepare a model to facilitate sensitivity analysis? What are key considerations in the development of scenarios that are the basis for sensitivity analysis? What are some typical sensitivity analysis methods and how can you select among them? How should particular sensitivity analysis methods be applied? How should the results of sensitivity analysis be presented and interpreted? This workshop will answer these questions. The methods and case studies presented are based upon several years of research at NC State University (Dr. Frey) and RTI regarding developing quantitative risk assessment models for environmental and microbial systems and research regarding transferring, applying, and adapting sensitivity analysis methods developed in other disciplines to quantitative exposure and risk assessment models. This workshop helps practitioners select specific sensitivity analysis methods relevant to the particular case study and model characteristics. The workshop will also aid in interpreting results from a sensitivity analysis in response to a particular modeling objective. The basic concepts of probabilistic risk assessment will be illustrated using practical case studies. This workshop is aimed at practitioners, managers, or reviewers who wish to refine their knowledge regarding approaches in risk assessment and sensitivity analysis methods.

<http://www4.ncsu.edu/~frey/SRA11/>

WK6: Probabilistic Risk Analysis with Hardly Any Data

Organizer: Scott Ferson

\$250 preregistration; \$300 onsite registration

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, Bayesian model averaging and the old work horse, 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 CD of the illustrations and numerical examples used during the tutorial.

WK7: The Transformation of Energy Policies: Implications for Risk Governance, Communication and Stakeholder Participation

Organizer: Ortwin Renn

\$300 preregistration; \$350 onsite registration

The workshop will be focusing on risks from the generation and use of energy. This is a problem that has high popularity for risk professionals worldwide and includes typical risk components such as uncertainty, complexity and ambiguity. With the nuclear accident in Fukushima, the role of energy production is again in the forefront of public debate. The workshop will use this topic to explore the best means to communicate different types of risks and to involve stakeholders in the process of risk management and public communication. The basic core of this workshop is formed by a broad conceptual framework for risk governance developed by the International Risk Governance Council (IRGC), a private, non-profit foundation in Geneva, Switzerland. The workshop will be a combination of lecture and interactive case studies, including role-playing exercises and feedback discussions. It is designed to help workshop participants think through the issues involved in dealing with risk communication about energy risks.

WK8: ECETOC TRA, ESIG Consumer Generic Exposure Scenario and PetroRisk Exposure Tools

Organizer: Rosemary Zaleski

\$275 preregistration; \$325 onsite registration

A number of exposure and risk characterization tools have been developed to meet requirements of the European Union's Registration Evaluation and Authorization of Chemicals (REACH) regulation; this workshop will focus on three tools developed and used by the petroleum and petrochemical sectors that have applicability to other sectors and chemicals. The morning session will include an overview of REACH exposure requirements and an overview and working session with two tools.

- The European Center for Ecotoxicology and Toxicology of Chemicals Targeted Risk Assessment (ECETOC TRA) is a preferred screening tool listed within European Chemical Agency guidance documents that provides occupational, environmental and consumer exposure estimates.

- The European Solvents Industry Group Consumer Generic Exposure Scenario Tool (ESIG Consumer GES) is based upon the consumer portion of the ECETOC TRA, but implements refinements described within the TRA annex and autopopulates output in REACH format. The afternoon session will focus on:

- PETRORISK estimates exposures arising from environmental release of complex substances and can be used to quantify risks to human and wildlife receptors.

These freely available tools apply REACH exposure assessment guidance and demonstrate approaches developed to enable efficient and consistent implementation for meeting REACH requirements. Their design reflects parameters and defaults appropriate for hydrocarbon substances. Participants are encouraged to bring laptops for the working sessions. Participants will gain a general understanding of REACH exposure requirements, as well as the scientific basis of the tools being discussed. They will learn how to use these three tools and develop an understanding of their strengths, limitations, and application boundaries.

WK9: Eliciting Judgments to Inform Decisionmaking

Organizer: Christina McLaughlin

\$300 preregistration; \$350 onsite registration

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 this workshop, we will investigate the advantages and limitations of alternative approaches to research synthesis from a cross-disciplinary perspective.

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 workshop will conclude with a panel discussion focused on questions raised by attendees, including the appropriate application of each method to the problems they face to support evidence-based decisionmaking.

Note: This workshop is intended for those who are interested in exploring the advantages and limitations of alternative approaches for synthesizing evidence. Those interested in exploring expert elicitation techniques in more detail should instead register for the workshop, Eliciting Judgments to Inform Decisionmaking.

WK10: Biological Interactions between Social Stressors and Environmental Hazards

Organizers: Onyemaechi Nweke and Devon C. Payne-Sturges

\$50 preregistration; \$50 onsite registration

In the United States, historical social and economic forces have segregated certain segments of the population into communities with high indices of urban poverty, material deprivation and adverse physical and social environmental conditions. Emerging research suggests that this confluence of risk factors can modify the relationship between exposure to pollution and the resultant adverse health effects. The evidence from this research underlies hypotheses that these types of interactions may explain persistent environmental

health inequities across population groups defined by race/ethnicity and income in the United States, and has driven proposals for paradigm shifts in our traditional understanding of the relationship between environmental exposure and disease. However, much remains unknown about the pathways through which social context interacts with environmental health risk. These advancements in knowledge are requisite to facilitate comprehensive integration of the emerging research in environmental policy making. Specifically, such data can help to more accurately define exposure-response relationships used in risk assessments, aid the development of robust and sensitive methods to identify vulnerable population groups, and inform standards setting and other policy actions to ensure the protection of populations that are more vulnerable as a result of co-exposure to both social and chemical stressors. The objectives of this workshop are to: share knowledge on biological pathways through which psychosocial stress and social context may influence health risk; highlight and discuss emerging toxicological and epidemiological data on the interactions between social context, psychosocial stress and exposures to environmental hazards, and stimulate discussion on research to advance the practical application of this type of information in risk assessment.

Half Day AM Workshops

SUNDAY 8:00 am - 12:00 pm

WK1A: Benchmark Dose Modeling (BMD) Analysis – An Introduction to BMD Methods and Application of EPA’s Benchmark Dose Software

Organizer: J. Allen Davis

\$175 preregistration; \$225 onsite registration

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. 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>.

WK8A: ECETOC TRA, ESIG Consumer Generic Exposure Scenario and PetroRisk Exposure Tools

Organizer: Rosemary Zaleski

\$175 preregistration; \$225 onsite registration

A number of exposure and risk characterization tools have been developed to meet requirements of the European Union's Registration Evaluation and Authorization of Chemicals (REACH) regulation; this workshop will focus on three tools developed and used by the petroleum and petrochemical sectors that have applicability to other sectors and chemicals. The morning session will include an overview of REACH exposure requirements and an overview and working session with two tools.

- The European Center for Ecotoxicology and Toxicology of Chemicals Targeted Risk Assessment (ECETOC TRA) is a preferred screening tool listed within European Chemical Agency guidance documents that provides occupational, environmental and consumer exposure estimates.

- The European Solvents Industry Group Consumer Generic Exposure Scenario Tool (ESIG Consumer GES) is based upon the consumer portion of the ECETOC TRA, but implements refinements described within the TRA annex and autopopulates output in REACH format.

WK11: Dosimetric Adjustment Methods and Application in Chemical Risk Assessment

Organizer: Jay Zhao

\$250 preregistration; \$300 onsite registration

This half-day workshop is designed to provide basic training in methods used for the dosimetric adjustments required for completing dose-response assessments derived from animal toxicology data. The topics will include interspecies oral dose adjustment for noncancer and cancer assessment, cancer unit risk or slope factor conversion, inhalation exposure concentration unit conversion and human equivalent concentration (HEC) calculation for particle and vapor exposure using various modeling approaches. Applications of physiologically-based pharmacokinetic (PBPK) modeling and Chemical Specific Adjustment Factors in dose-response assessment will also be introduced. Participants will be provided with sufficient working knowledge of the various techniques to conduct all the necessary dosimetric adjustment(s) in typical

noncancer and cancer risk assessments. It is recommended that participants bring a calculator and a laptop computer for class exercises.

WK12: Synthesizing Evidence: An Introduction to Systematic Reviews, Meta-Analysis, and Expert Elicitation

Organizer: Lisa Robinson

\$225 preregistration; \$275 onsite registration

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 this workshop, we will investigate the advantages and limitations of alternative approaches to research synthesis from a cross-disciplinary perspective. 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 workshop will conclude with a panel discussion focused on questions raised by attendees, including the appropriate application of each method to the problems they face to support evidence-based decisionmaking.

Note: This workshop is intended for those who are interested in exploring the advantages and limitations of alternative approaches for synthesizing evidence. Those interested in exploring expert elicitation techniques in more detail should instead register for the workshop, Eliciting Judgments to Inform Decisionmaking.

WK13: Introduction to Environmental and Health Aspects of Nanotechnology

Organizer: Jo Ann Shatkin

\$350 preregistration; \$400 onsite registration

This course will provide participants with an overview of the emerging concerns regarding nanotechnology and nanomaterials and impacts for occupational and public health and the environment. The course introduces the topics of nanotechnology, nanotoxicology, environmental aspects of nanotechnology, and addresses ethical, legal, societal and regulatory perspectives. Through lectures and interactive sessions, participants will obtain a knowledge base for understanding the exposure, human health, and safety issues for nanomaterials and nanotechnologies and the potential impacts for workers, consumers, stakeholders, and the environment. Nanotechnology is the understanding and control of matter at dimensions of roughly 1 to 100 nanometers, where unique phenomena enable novel applications. Nanotechnology is emerging in all economic sectors, including: energy, medicine, food technology, imaging, manufacturing, electronics and air and water purification. Some of the current and potential future materials and technologies have the potential for significant impacts on health and the environment. This course introduces participants to the technological basis of nanoscale phenomena, the current and potential future uses of nanotechnology, explores the breadth of issues raised for health and the environment, and implications of current research and gaps on regulatory policy and societal impacts. At the conclusion of this course, the participants will have gained insights into (1) Key concerns regarding nanotechnology risks for employees, the public, and the environment; (2) Characteristics and properties of nanomaterials and nanotechnologies; (3) Nanotoxicology: state-of-the-science regarding the toxicity of nanomaterials and nanotechnologies; (4) Environmental aspects of nanotechnology; and (5) Risk assessment and risk management issues for nanomaterials and nanotechnologies.

WS 14: Use of PBPK Modeling to Evaluate Risks To Sensitive Population and Early Ages

Organizer: Harvey J. Clewell and Miyoung Yoon

\$200 preregistration; \$250 onsite registration

A major challenge in addressing concerns on early life sensitivity to environmental chemicals is obtaining the dosimetry information in the target tissue during development and growth. In this course, the value of physiologi-

cally based pharmacokinetic (PBPK) modeling in quantitative health risk assessments for early life is demonstrated by providing a scientifically sound tool to predict the target tissue dose in different life stages. Early life dosimetry is the result of a complex interplay of changing physiological and biochemical factors during dynamic development. Such factors include ontogeny in metabolizing enzymes, changes in transporter expression, maturation of biological barriers such as the blood brain barrier, differential growth of tissues, and distinct exposure patterns in children compared to adults. These factors contribute to pharmacokinetic differences between the young and adult and may be responsible for potential differences in susceptibility to chemicals across ages. PBPK modeling provides a means to integrate these factors in proper context and thus contributes to reducing uncertainty in conducting risk/safety assessment for early life and related sensitive life stages including pregnancy and lactation. The presentations will provide an overview of pharmacokinetic factors affecting early life dosimetry and two case studies of PBPK approaches for gestation/lactation and childhood exposures, plus a demonstration of how PBPK modeling of development can be used to evaluate neonatal epidemiological results. The course participants will get in depth understanding of the value of PBPK modeling in addressing issues of potential sensitivity in sensitive population/infants and children and the possible application scenarios of this valuable tool.

Half Day PM Workshops SUNDAY 1:00 - 5:00 pm

WK1B: Benchmark Dose Modeling (BMD) Analysis – An Introduction to BMD Methods and Application of EPA’s Benchmark Dose Software

Organizer: J. Allen Davis

\$175 preregistration; \$225 onsite registration

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 ses-

sions. 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>.

WK8B: ECETOC TRA, ESIG Consumer Generic Exposure Scenario and PetroRisk Exposure Tools

Organizer: Rosemary Zaleski

\$175 preregistration; \$225 onsite registration

A number of exposure and risk characterization tools have been developed to meet requirements of the European Union's Registration Evaluation and Authorization of Chemicals (REACH) regulation; this workshop will focus on three tools developed and used by the petroleum and petrochemical sectors that have applicability to other sectors and chemicals. The afternoon session will focus on:

- PETRORISK estimates exposures arising from environmental release of complex substances and can be used to quantify risks to human and wildlife receptors.

These freely available tools apply REACH exposure assessment guidance and demonstrate approaches developed to enable efficient and consistent implementation for meeting REACH requirements. Their design reflects parameters and defaults appropriate for hydrocarbon substances. Participants are encouraged to bring laptops for the working sessions. Participants will gain a general understanding of REACH exposure requirements, as well as the scientific basis of the tools being discussed. They will learn how to use these three tools and develop an understanding of their strengths, limitations, and application boundaries.

WK15: Enterprise & Project Risks from a Systems Perspective

Organizer: C. Ariel Pinto

\$275 preregistration; \$325 onsite registration

This workshop has the objective to develop understanding and skills on the basic framework for the modeling, assessment, analysis, and management of risks in the context of project and engineering enterprises. Topics to be discussed include, but are not limited to introductions to risk and project management, engineering enterprise systems, a systems perspective on project goals and anti-goals, identifying and estimating project risks, and using expert evidence in risk estimation. Also will be discussed are generalized processes for project risk management and engineering enterprise risk management, including the characterization of enterprise problem space and capability approach. There will be several case studies for workshop participants to develop fundamental skills and generate insights.

<https://sites.google.com/site/eprisksystemperspective/>

WK16: Chemical-Specific Adjustment Factors: Application of Data to Reduce Uncertainty in Inter- and Intraspecies Extrapolation for Chemical Risk Assessment

Organizer: John Lipscomb

\$250 preregistration; \$300 onsite registration

The World Health Organization, through the International Programme on Chemical Safety (IPCS), has established guidance on the use of mechanistic data to replace default uncertainty factors for interspecies extrapolation and intraspecies variability in deriving risk values such as Reference Doses (RfDs) and Tolerable Concentrations (TCs). This guidance informs the choice and application of data that can be used to replace defaults with chemical specific adjustment factors (CSAFs), resulting in values that better reflect the data for the chemical of interest. Under this approach, the uncertainty factors for interspecies differences (UFA) and human variability (UFH) are first subdivided into toxicokinetic (TK) and toxicodynamic (TD) components. The data relevant for each subcomponent is then evaluated to determine whether chemical-specific data can be used in place of the default. Use of the CSAF framework allows the improved use of available data in deriving risk values, and can assist in targeting new studies to address uncertainties and lead to more accurate risk values, including kinetic and dynamic data in in vitro systems. CSAFs have been used by the U.S. EPA in deriving an RfD for boron and by Health Canada in deriving a TC for 2-butoxyethanol. This half-day workshop will provide a

brief review of the use of uncertainty factors and historical perspective on the reliance on quantitative data to develop values for inter- and intraspecies extrapolation. The course will focus on the IPCS methodology for CSAF development, including the thinking process and steps used for evaluating data. Examples and classroom activities will be used as instructional aides.

WK17: Risk Analysis: Fundamental Concepts, Applications and Controversies

Organizer: Branden B. Johnson

\$250 preregistration; \$300 onsite registration

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, terminology, applications and calculations. 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. Participants should have an undergraduate degree in an area relevant to risk analysis, and / or relevant work experience. Upon completion of this course, students will understand the origins, applications and controversies surrounding risk analysis. They will be prepared to evaluate risk analysis reports and presentations. Most importantly, they will be prepared to engage comfortably in the range of conversations that distinguish Society for Risk Analysis Annual Conferences.

**Full Day Workshop –
THURSDAY 8:30 am – 5:30 pm**

WK18: Probabilistic Risk Analysis with Hardly Any Data

Organizer: Scott Ferson

\$250 preregistration; \$300 onsite registration

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, Bayesian model averaging and the old work horse, 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 CD of the illustrations and numerical examples used during the tutorial.

PLENARY SESSIONS

All Plenary Sessions will be held in the Charleston Area Convention Center

Opening Plenary Session

Monday, December 5, 8:30 – 10:00 AM, Ballroom A/B

“Extremes: in Weather and Risk”

Speakers: Margaret Davidson, *Director, National Oceanic and Atmospheric Administration Coastal Services Center*

Tuesday Plenary Session, 8:30 – 10:00 AM, Ballroom A/B

“Reducing risks of oil spills from the Exxon Valdez to Deepwater Horizon”

Speakers: Admiral Thad Allen, former National Incident Commander of the BP oil spill and Senior Analyst at Rand

Admiral Allen will discuss national attempts to reduce risks of future events following the Exxon Valdez spill and how these actually played out in the Deepwater Horizon Spill.

Discussant: P. Lynn Scarlett, *Visiting Scholar and Co-Director, Center for the Management of Ecological Wealth, Resources for the Future, and former Deputy Secretary and Chief Operating Officer of the US Department of the Interior (2005-2009);*

Discussant: Anne Hayward Walker, *President, Scientific Environmental Associates*

Wednesday Plenary Luncheon, Noon – 1:30 PM, Ballroom A/B

“A Tribute to Lester Lave”

Through his research and education contributions, as well as his service to SRA, as a member and chair of many NRC committees, and in many other ways, Lester Lave was a leader building the field of risk analysis.

During this session three of Lester Lave’s long-time colleagues and research collaborators will reflect on his many contributions to risk and policy analysis, highlighting the promise and future trajectory stemming from their collaborative research with Lester.

Speakers: M. Granger Morgan, *Lord Chair Professor in Engineering, Professor and Department Head, Engineering and Public Policy, Professor, Electrical and Computer Engineering and Heinz College, Carnegie Mellon University;* Gil Omenn, *Director of Center for Computational Medicine and Bioinformatics, Professor of Internal Medicine, Human Genetics, and Public Health, University of Michigan;* Jay Apt, *Professor of Technology, Tepper School of Business and Engineering and Public Policy, Carnegie Mellon University, Executive Director, Carnegie Mellon Electricity Industry Center*

PRESIDENTIAL ROUNDTABLES

The Presidential Roundtables will be held in the Charleston Area Convention Center

Monday 5:15-6:15pm, Ballroom C1

Presidential Roundtable on
OECD and Critical Issues in Risk Analysis
of Nanomaterials

Organizer: JoAnne Shatkin

Monday 5:15-6:15pm, Ballroom C2

Presidential Roundtable on Sustainability and the
U.S. EPA, the “Green book” Report from the
National Academies

<http://www8.nationalacademies.org/onpinews/newsitem.aspx?RecordID=13152>

Organizers: Bernie Goldstein and Lauren Zeise

Monday 5:15-6:15pm, Ballroom C3

Presidential Roundtable on The prospects
for a Congressional Office of
Regulatory Analysis

Organizer: Rick Belzer

7:00-8:00 AM **New Member and Fellows Breakfast**

8:30-10:00 AM **M1 Plenary Session, Ballroom A/B (CC) "Extremes: In Weather and Risk"**
Speaker: Margaret Davidson

10:00-10:30 AM **Coffee Break**

	Ballroom C1	Ballroom C2	Ballroom C3	Room 6	Room 7
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10:30 AM- Noon	M2-A Panel Discussion: Approaches to Animal Health Risk Assessment	M2-B Poster Platform: Technical Topics in Decision Analysis and Risk	M2-C Symposium: Tox 21/Nex-Gen Dose Response	M2-D Symposium: Risks of Transportation Disruptions	M2-E Eco-Risk
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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 3 for details.**
 12:05-12:30 PM - Dose-Response, Economics & Benefits, Security & Defense, and Risk Communication Specialty Groups
 12:35-1:00 PM - Ecological Risk Assessment, Exposure Assessment, Risk Policy & Law, and Risk & Development Specialty Groups
 1:05-1:30 PM - Decision Analysis and Risk, Emerging Nanoscale Materials, Engineering & Infrastructure, and Biological Stressors Specialty Groups

1:30- 3:00 PM	M3-A: Animal Epidemics, Terrorist Threats, and Siting Biological Research Facilities	M3-B: Exposure Assessment Tools	M3-C Symposium: Dose Response for Biothreats	M3-D Symposium: Ecological Risks Associated with Surface Mining	M3-E Symposium: Listeria Monocytogenes Dose-Response Data and Models: Current and Future Advancements
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3:00-3:30 PM **Coffee Break**

3:30- 5:00 PM	M4-A: Emerging Theories of Risk Communication	M4-B Panel Discussion: Synthetic Biology and Risk Governance	M4-C: Biomonitoring Data for Risk Assessment	M4-D Symposium: Risk Management Actions for Emerging Contaminants	M4-E Symposium: Microbial Safety of Fresh Produce, Spices and Herbs: Mitigating Risk from Farm-to-Table
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6:15-8:15 PM **Poster Reception**

7:00-8:00 AM New Member and Fellows Breakfast

8:30-10:00 AM **M1 Plenary Session**, Ballroom A/B (CC) “Extremes: In Weather and Risk”
Speaker: Margaret Davidson

10:00-10:30 AM Coffee Break

	Room 8/9	Room 10	Room 11	Room 12/13	Room 14
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10:30 AM- Noon	M2-F Panel Discussion: Getting Beyond the Statistician’s Bag of Marbles	M2-G Vulnerability! Disaster! Oh My!	M2-H Symposium: Progress and Challenges in RA and RM at DHS: Culture and Methodology	M2-I Symposium: Interagency Food Safety Analytics	M2-J Cumulative Exposures
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Pick up your box lunch near the Registration desk and attend the specialty group meeting(s) of your choice. **See page 3 for details.**
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 12:35-1:00 PM - Ecological Risk Assessment, Exposure Assessment, Risk Policy & Law, and Risk & Development Specialty Groups
 1:05-1:30 PM - Decision Analysis and Risk, Emerging Nanoscale Materials, Engineering & Infrastructure, and Biological Stressors Specialty Groups

1:30- 3:00 PM	M3-F Symposium: Engaging Stakeholders in Risk-Informed Decision Making: Methodology and Case Studies	M3-G Symposium: Risk Communication and Trust in Canadian Aboriginal Communities	M3-H Symposium: Analyzing and Managing 21st Century Risks: Moving Beyond Newtonian Approaches	M3-I Symposium: Synthesizing Studies for Evidence-Based Decisionmaking: Part 1, Meta-Regression and Related Methods	M3-J: Risk Assessment Methods Development
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3:00-3:30 PM Coffee Break

3:30- 5:00 PM	M4-F Panel Discussion: Structuring Decision Processes to Manage Risks	M4-G Symposium: Assessing and Managing Carbon Nanomaterials Risks: Current and Future Approaches	M4-H Symposium: Adversary Modeling for Terrorism Risk Analysis Applications	M4-I Symposium: Synthesizing Studies for Evidence-Based Decisionmaking: Part 2, Expert Elicitation	M4-J: Human Exposure to Contaminants in Food & Water
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6:15-8:15 PM Poster Reception

7:00-8:00 AM **Grad Student Breakfast**

8:30-10:00 AM **T1 Plenary Session, Ballroom A/B (CC) “ Reducing risks of oil spills from the Exxon Valdez to Deepwater Horizon”**
Speaker: Admiral Thad Allen; *Discussants:* Anne Hayward Walker, Nancy Kete

10:00-10:30 AM **Coffee Break**

	Ballroom C1	Ballroom C2	Ballroom C3	Room 6	Room 7
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10:30 AM- Noon	T2-A Climate Change Perceptions and Their Consequences	T2-B Symposium: Seafood Safety Following the Deepwater Horizon Oil Spill	T2-C Dose Response Modeling	T2-D Symposium: Climate Change Impacts and Adaptation Strategies: Evolving Roles of Risk Analysis	T2-E Health, Safety and Society
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Noon-1:30 PM SRA Awards Luncheon and Business Meeting
 Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday’s Poster Reception. (Included in Registration Fee)

1:30-3:00 PM	T3-A Fukushima and Risk Communication	T3-B Diverse Modeling Approaches for Exposure Assessment	T3-C Symposium: Improving Problem Formulation and Dose-Response Beyond Science and Decision, Part 1	T3-D Disasters and Infrastructure Interdependencies	T3-E Innovative Uses of QMRA to Support Risk Management
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3:00-3:30 PM **Coffee Break**

3:30-5:00 PM	T4-A Risk Communication and Emerging Technologies	T4-B Panel Discussion: Mercator-Symposium: Public Preferences and Regulatory Decision-Making - Smart Inputs for Smart Decisions?	T4-C Symposium: Improving Problem Formulation and Dose-Response Beyond Science and Decision, Part 2	T4-D Aquatic Ecological Risk Analysis	T4-E Symposium: Food Safety Risk Prioritization and Decision Analysis
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PM **Specialty Group Mixers**

7:00-8:00 AM

Grad Student Breakfast

8:30-10:00 AM

T1 Plenary Session, Ballroom A/B (CC) “Reducing risks of oil spills from the Exxon Valdez to Deepwater Horizon”
Speaker: Admiral Thad Allen; *Discussants:* Anne Hayward Walker, Nancy Kete

10:00-10:30 AM

Coffee Break

	Room 8/9	Room 10	Room 11	Room 12/13	Room 14
10:30 AM- Noon	T2-F Error in Risk Assessment	T2-G Games and Digital Platforms for Risk Communication	T2-H Bioterrorism: Analyzing Agents and Risks	T2-I Symposium: Regulation and Risk	T2-J Risk Communication - Networks across Hazards and along Life Cycles
Noon- 1:30 PM	SRA Awards Luncheon and Business Meeting Includes all SRA Awards, and the 5 Best Poster Award Winners from Monday’s Poster Reception. (Included in Registration Fee)				
1:30- 3:00 PM	T3-F Applied Methodology for Transportation and Other Risk Management	T3-G Nanomaterials: Environment, Dose-Response, and Expert Opinion	T3-H Risk Analysis of Weapons of Mass Destruction in the Supply Chain	T3-I Symposium: Catastrophic Climate Change	
3:00-3:30 PM	Coffee Break				
3:30- 5:00 PM	T4-F Organizational Processes for Risk-Oriented Decisions	T4-G Nanomaterials: Exposure, Hazard, Risk and Perception	T4-H Advanced Models and Decision Support for WMD Risk Management	T4-I Symposium: Global Catastrophic Risk	T4-J Panel Discussion: Student and Young Professional Roundtable on Career Development
PM	Specialty Group Mixers				

	Ballroom C1	Ballroom C2	Ballroom C3	Room 6	Room 7
8:30-10:00 AM	W1-A Symposium: How the Public Responds to Different Disasters over Time: The Role of Perceived Risk, Emotion and Risk Communication	W1-B Symposium: Analytical Approaches to Food Safety Management	W1-C Risk Theory and Practice	W1-D Methods to Inform Environmental Management	
10:00-10:30 AM Coffee Break					
10:30 AM-Noon	W2-A Communicating Food Contamination	W2-B Poster Platform: The Development of High Throughput Exposure Techniques for Prioritizing Chemical Risks	W2-C Low-Dose Dose-Response	W2-D Risk Analysis of Transportation Networks and Assets	W2-E Symposium: Rapid Risk Evaluation: Analytic Tools to Support Federal Response to Environmental and Food Safety Incidents
Noon-1:30 PM Plenary Luncheon, Ballroom A/B (CC) "A Tribute to Lester Lave;" Speakers: M. Granger Morgan, Gil Omenn, Jay Apt					
1:30-3:00 PM	W3-A Communicating Risks in Times of Duress	W3-B Foodborne Exposures	W3-C Symposium: Graphic Depictions of Toxicological Data	W3-D Ecological Risk Assessment	W3-E Symposium: Innovative Means of Data Collection to Support a Quantitative Risk Assessment
3:00-3:30 PM Coffee Break					
3:30-5:00 PM	W4-A Communicating Risks, Health and Well-Being	W4-B Risk Assessment of Pharmaceuticals in the Environment	W4-C Symposium: Fulfilling the Potential of EPA's Integrated Risk Information System (IRIS) Program	W4-D Reliability Analysis and Modeling for Infrastructure Systems	W4-E Bio-Risk: Agriculture and Beyond
5:00-6:00 PM T-Shirt Giveaway/Wine & Cheese Reception (Cash Bar) Stay for the Reception and receive a free T-Shirt!					

	Room 8/9	Room 10	Room 11	Room 12/13
8:30-10:00 AM	W1-F Symposium: Risk Assessment for Acquisition and Assets Management	W1-G Uncertainty, Bears, Dioxin and Well Water	W1-H Symposium: Managing Risks from Hurricanes in Coastal Areas	W1-I Preference Elicitation and Benefits Assessments, Part 1
10:00-10:30 AM	Coffee Break			
10:30 AM-Noon	W2-F Innovative Mathematical and Computational Methods for Risk Modeling	W2-G Epidemiological Dose Response Data	W2-H Symposium: Risk Communication in the US Hurricane Forecast and Warning System	W2-I Preference Elicitation and Benefits Assessments, Part 2
Noon-1:30 PM	Plenary Luncheon, Ballroom A/B (CC) "A Tribute to Lester Lave;" <i>Speakers:</i> M. Granger Morgan, Gil Omenn, Jay Apt			
1:30-3:00 PM	W3-F Symposium: Making the World Safer - Perspectives from Different Industries and Countries	W3-G The Dose Response Wave	W3-H Symposium: Game Theory and Homeland Security	W3-I Symposium: Benefits, Co-Benefits and Uncertainties of Air Quality Improvements
3:00-3:30 PM	Coffee Break			
3:30-5:00 PM	W4-F Environmental Risk Management Decisions	W4-G Panel Discussion: SRA Specialty Groups: What's Missing	W4-H Risk Analysis Approaches for Cybersecurity and Critical Infrastructure	W4-I Symposium: Quantifying and Communicating the US Domestic Benefits of GHG Emissions Reductions
5:00-6:00 PM	T-Shirt Giveaway/Wine & Cheese Reception (Cash Bar) Stay for the Reception and receive a free T-Shirt!			

<p>10:30 AM-Noon <i>Ballroom C1</i></p> <p>M2-A Panel Discussion: Approaches to Animal Health Risk Assessment <i>Co-Chairs: Tim Krymowak, Darrell Donahue</i></p>	<p>10:30 AM-Noon <i>Ballroom C2</i></p> <p>M2-B Poster Platform: Technical Topics in Decision Analysis and Risk <i>Sponsored by DARSG</i> <i>Chair: Patricia Gillespie</i></p> <p>10:30 am M2-B.1 Delphi analysis of issues after the 2011 Pacific Coast of Tohoku earthquake <i>Maeda Y, Seo K</i> <i>Shizuoka University, Aoyama Gakuin University</i></p> <p>10:35 am M2-B.2 Synthetic biology: evaluation using integrated risk assessment, life cycle assessment and multi-criteria decision analysis <i>Chu E, Bockelie A, Linkov I</i> <i>Carnegie Mellon University</i></p> <p>10:40 am M2-B.3 Vapor intrusion: risks and benefits of an alternative approach <i>Schuer HJ</i> <i>US Environmental Protection Agency</i></p> <p>10:45 am M2-B.4 Use of quantitative microbial risk assessment and projective transport models to inform beach closures <i>Panzl BM, Weir MH, Pope JM, Rose JB</i> <i>Michigan State University</i></p>	<p>10:30 AM-Noon <i>Ballroom C3</i></p> <p>M2-C Symposium: Tox 21/ NexGen Dose Response <i>Chair: George Woodall</i></p> <p>10:30 am M2-C.1 Summary of the 2011 DRSG Teleseminar Presentations and Discussions <i>Abraham IM, Henry S</i> <i>TERA</i></p> <p>10:50 am M2-C.2 Tox21: Activities of the U.S. National Toxicology Program (NTP) <i>DeVito MJ, Tice R</i> <i>National Institute of Environmental Health Sciences</i></p> <p>11:10 am M2-C.3 An update on advancing the next generation of risk assessment (NexGen) <i>Burgoon LD</i> <i>US Environmental Protection Agency</i></p>	<p>10:30 AM-Noon <i>Room 6</i></p> <p>M2-D Symposium: Risks of Transportation Disruptions <i>Chair: Cameron MacKenzie</i></p> <p>10:30 am M2-D.1 Risk management: the heart of the transport dangerous goods program <i>Oliver G, Tardif C, Provencher M</i> <i>Transport Canada</i></p> <p>10:50 am M2-D.2 A port security risk analysis and resource allocation system - from tactical to strategic <i>Orosz MD, Southwell C, Chen J, Maya I, Chatterjee S, Salazar D, Southers E</i> <i>University of Southern California</i></p> <p>11:10 am M2-D.3 Post-disaster resilience for interdependent systems: application to inland port disasters <i>Pant R, Barker K, Landers TL</i> <i>University of Oklahoma</i></p> <p>11:30 am M2-D.4 Optimal resource allocation for recovery from multimodal transportation disruptions <i>MacKenzie CA, Barker K</i> <i>University of Oklahoma</i></p>	<p>10:30 AM-Noon <i>Room 7</i></p> <p>M2-E Eco-Risk <i>Chair: Sally Kane</i></p> <p>10:30 am M2-E.1 Exploring public participation decision-making at superfund sites: a mental models approach <i>Ackerlund WS</i> <i>Ackerlund, Inc.</i></p> <p>10:50 am M2-E.2 Enabling eco-friendly choices by using human psychological biases <i>Dutt V, Gonzalez C</i> <i>Carnegie Mellon University</i></p> <p>11:10 am M2-E.3 Environmental risk management and economic performance of policy instruments: a strategic analysis of UK experience since 1997 <i>Taylor CM, Pollard SJT, Rocks SA, Smith MC</i> <i>Cranfield University</i></p> <p>11:30 am M2-E.4 Linking theories of attribution, risk perception, and communication to investigate risk management and safety in an applied context <i>Rickard LN</i> <i>Cornell University</i></p>
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10:30 AM-Noon
Room 8/9
**M2-F Panel Discussion:
 Getting Beyond the Statistician's Bag of Marbles**
Chair: Scott Ferson

10:30 AM-Noon
Room 10
**M2-G Vulnerability!
 Disaster! Oh My!**
Chair:
10:30 am M2-G.1
 Evolving regional natural disaster risk in the international development context
Brink SA, Davidson RA
University of Delaware

10:50 am M2-G.2
 Dynamic risk analysis in the life cycle of complex infrastructure systems
Huang T
University of California, Berkeley

11:10 am M2-G.3
 Analysis of inland crude oil spill threats, vulnerabilities, and emergency response in the midwest United States
Brody TM, Di Bianca P, Krysa J
United States Environmental Protection Agency

11:30 am M2-G.4
 Risk culture: local responses to global threats. Transforming vulnerabilities into capabilities
Orozco Restrepo OR
Universidad del Norte

10:30 AM-Noon
Room 11
M2-H Symposium: Progress and Challenges in RA and RM at DHS: Culture and Methodology
Chair: Steve Bennett

10:30 am M2-H.1
 Tomorrow's government: building a risk management culture at the Department of Homeland Security
Gilmour L, Rath C, Kolasky RP
US Department of Homeland Security, Office of Risk Management and Analysis

10:50 am M2-H.2
 From calculations to results to decisions: how a risk architecture approach supports decision making at the Domestic Nuclear Detection Office (DNDO)
Streetman SS
Data Architecture Solutions Inc

11:10 am M2-H.3
 Using expert judgment to understand the rare event threat space of Homeland Security: practices, challenges, and opportunities
Hawkins NL, Kirson A, Levine ES, Sussel I, Szved P, Waters J
US Department of Homeland Security, Office of Risk Management and Analysis, United States Coast Guard

11:30 am M2-H.4
 "Intelligent" integration of intelligent adversary modeling into Homeland Security risk analyses: theory and practice
Bennett SP, Cheesebrough AJ, Waters J
US Department of Homeland Security, Office of Risk Management and Analysis

10:30 AM-Noon
Room 12/13
M2-I Symposium: Interagency Food Safety Analytics
Chair: Kara Morgan

10:30 am M2-I.1
 Use of consumption data to inform human illness surveillance data
Cole D, Hoekstra M
Centers for Disease Control and Prevention

10:50 am M2-I.2
 Evaluation of outbreak data as representative of foodborne sporadic illness data for the purpose of estimating attribution
Golden NJ, Zablotsky-Kufel J, Cole DJ, Hoekstra M, Spires C, Morgan K
Government

11:10 am M2-I.3
 Meeting near-term needs for the estimated attribution of foodborne illness to food commodities
Hoekstra RM
Centers for Disease Control and Prevention

11:30 am M2-I.4
 Introduction to the interagency Food Safety Analytics Collaboration
Morgan KM, Spires C, Golden N, Zablotsky-Kufel J, Cole D, Hoekstra M
US Food and Drug Administration

10:30 AM-Noon
Room 14
M2-J Cumulative Exposures
Chair: Gary Bangs

10:30 am M2-J.1
 Methods of assessing multi-chemical, multi-route exposure
Bangs GW
USPHS (Retired)

10:50 am M2-J.2
 Cumulative risk assessment and multidimensional indicators
Schultz BD
US Environmental Protection Agency

11:10 am M2-J.3
 A cumulative exposure assessment of noise and volatile organic compounds
Evans AM, Rice G, Teuschler LK, Wright JM
Association of Schools of Public Health, National Center for Environmental Assessment, Office of Research and Development, US Environmental Protection Agency

11:30 am M2-J.4
 Cumulative risk assessment to evaluate cognitive deficits consistent with IQ reduction in children
Liu CL, Luke NL
CDM

<p>1:30-3:00 PM <i>Ballroom C1</i></p>	<p>1:30-3:00 PM <i>Ballroom C2</i></p>	<p>1:30-3:00 PM <i>Ballroom C3</i></p>	<p>1:30-3:00 PM <i>Room 6</i></p>	<p>1:30-3:00 PM <i>Room 7</i></p>
<p>M3-A Animal Epidemics, Terrorist Threats, and Siting Biological Research Facilities <i>Chair:</i></p>	<p>M3-B: Exposure Assessment Tools <i>Chair: Michael Breen</i></p>	<p>M3-C Symposium: Dose Response for Biothreats <i>Chair: Peg Coleman</i></p>	<p>M3-D Symposium: Ecological Risks Associated with Surface Mining <i>Chair: Cheryl DeCrenza, Kurt Frantzen</i></p>	<p>M3-E Symposium: Listeria Monocytogenes Dose-Response Data and Models: Current and Future Advancements <i>Chair: Sberri Dennis, Dan Gallagher</i></p>
<p>1:30 pm M3-A.1 Perceived riskiness and WTP of four terrorist threats <i>Mumpower JL, Shi L, Vedlitz A</i> <i>Texas A&M University</i></p>	<p>1:30 pm M3-B.1 Up in the air: comparison of exposure tools from across the globe that can predict worker inhalation exposures <i>Gaborek BJ</i> <i>DuPont Haskell Global Centers for Health & Environmental Sciences</i></p>	<p>1:30 pm M3-C.1 Need drives development - Army Biological Military Exposure Guidelines (BMEGs) <i>Thran BH, Intano GI, McAtee MJ</i> <i>Army Institute of Public Health</i></p>	<p>1:30 pm M3-D.1 Remediation of a mineral sand mine waste water treatment plant <i>Adams SR, Olsen E, Dodson J, Murawski E, DeCrenza C</i> <i>Private industry</i></p>	<p>1:30 pm M3-E.1 Lots of bacteria - few cases: reopening the listeria dose-response model black-box <i>Pouillot R</i> <i>Food and Drug Administration</i></p>
<p>1:50 pm M3-A.2 Risk perceptions and actions of World Trade Center attack survivors compared inside and outside the WTC towers <i>Zimmerman R, Sherman MF, Gershon R</i> <i>New York University, Loyola University Maryland, Columbia University</i></p>	<p>1:50 pm M3-B.2 Microenvironment tracker (Micro-Trac) for individuals in health studies: estimation of time-microenvironment profiles from GPS data loggers <i>Breen M, Crooks J, Long T, Isaacs K, Schultz B, Mukerjee S, Devlin R</i> <i>US Environmental Protection Agency</i></p>	<p>1:50 pm M3-C.2 Let the data speak: extrapolating information for biothreats <i>Donadue D</i> <i>University of Maine</i></p>	<p>1:50 pm M3-D.2 Reclamation strategies for a Florida phosphate mine <i>Dodson J</i> <i>Industry</i></p>	<p>1:50 pm M3-E.2 From experimental infections in animals to quantifying subtypes in foods: advancements and challenges of data collection for listeria dose-response <i>Chen Y</i> <i>Food and Drug Administration - CFSAN</i></p>
<p>2:10 pm M3-A.3 Gender differences in lay people and experts concerning their decisions about different strategies to fight epidemics <i>Zingg A, Siegrist M</i> <i>ETH Zurich</i></p>	<p>2:10 pm M3-B.3 Integrating cumulative risk and environmental justice assessments to guide decision-making, promote stakeholder involvement and assess cumulative impacts: the CRA-EJ Wizard <i>Barzyk TM, Perlmutter L, Dana G, Martin L, Foster S, Bollweg G</i> <i>US Environmental Protection Agency</i></p>	<p>2:10 pm M3-C.3 Modeling respiratory mechanics in animals: tularemia in the rhesus monkey <i>McClellan G, Weber P, Asgharian B, Price O</i> <i>Applied Research Associates, Inc.</i></p>	<p>2:10 pm M3-D.3 Ecological risk factors for surface mines in Florida <i>Murawski E</i> <i>Private - consulting firm</i></p>	<p>2:10 pm M3-E.3 Future advancements: recommendations from the IRAC-JIFSAN listeria dose-response workshop <i>Walls I</i> <i>US Department of Agriculture National Institute of Food and Agriculture</i></p>
<p>2:30 pm M3-A.4 Risk publics: understanding the unifying ties of personal beliefs vs. community of residence in the site-selection for a biological research facility <i>Binder AR, Scheufele DA, Brossard D</i> <i>North Carolina State University, University of Wisconsin-Madison</i></p>	<p>2:30 pm M3-B.4 A probabilistic depleted uranium performance assessment: methodology and results <i>Perona R, Lee R, Black P, Tanxue J, Stockton T, Fitzgerald M, Balsbi M, Catlett K</i> <i>Neptune and Company, Inc.</i></p>	<p>2:30 pm M3-C.4 Aerosol disease models: limitations of current data and promise of model-directed research <i>Roy CJ</i> <i>Tulane University School of Medicine</i></p>	<p>2:30 pm M3-D.4 Evaluating the regulatory and policy climate that drives risk assessment for surface mine permitting, operations and reclamation in Florida <i>Olsen E</i> <i>Private - Law Firm</i></p>	

<p>1:30-3:00 PM <i>Room 8/9</i></p> <p>M3-F Symposium: Engaging Stakeholders in Risk-Informed Decision Making: Methodology and Case Studies <i>Sponsored by DARSG</i> <i>Chair: Igor Linkov and Jose Palma Oliveira</i></p> <p>1:30 pm M3-F.1 Industry and stakeholder engagement: the case of co-incineration of hazardous waste by cement industry <i>Palma Oliveira J</i> <i>University of Lisbon, Portugal</i></p> <p>1:50 pm M3-F.2 Getting consensus across interagency stakeholders: application of multi-criteria decision analysis to prioritize skills required for future diplomatic missions <i>Linkov I, Rosoff H, Valverde LJ, Bates M, Trump B, Friedman D, Evans J, Keisler J</i> <i>US Army Engineer Research and Development Center, US Department of State, University of Massachusetts</i></p> <p>2:10 pm M3-F.3 Stakeholder engagement in the dredged material management plan for Long Island Sound <i>Collier ZA, Bates ME, Chu EJ, Fredette TJ, Keegan MF, Habel ML, Wolf S, Linkov I</i> <i>US Army Corps of Engineers</i></p> <p>2:30 pm M3-F.4 Chemical Hazards Emergency Medical Management (CHEMM): mental models approach to improving provision of emergency preparedness and response information <i>Kovacs D, Thorne S, Butte G, Chang F, Pakiam J, Hakkinen B, Linkov I</i> <i>Decision Partners, LLC, National Institutes of Health, National Library of Medicine, US Army Corps of Engineers</i></p>	<p>1:30-3:00 PM <i>Room 10</i></p> <p>M3-G Symposium: Risk Communication and Trust in Canadian Aboriginal Communities <i>Chair: Michelle Driedger</i></p> <p>1:30 pm M3-G.1 Risk communication and trust in decision-maker action: lessons from first nations, Inuit and Metis case studies in Canada - the theoretical and methodological framework <i>Cooper EJ, Jardine C, Furgal C, Driedger SM</i> <i>University of Manitoba</i></p> <p>1:50 pm M3-G.2 Evaluating Trust of Contaminants and Food Messaging in Inuit Communities <i>Furgal C, Driedger SM, Jardine CG</i> <i>Trent University chrisfurgal@trentu.ca</i></p> <p>2:10 pm M3-G.3 Evolution of trust in risk communication: the development of the giant mine remediation plan and the Yellowknives Dene First Nation <i>Jardine CG, Driedger SM, Furgal CM</i> <i>University of Alberta</i></p> <p>2:30 pm M3-G.4 Finding a voice for the Metis: risk communication and trust during the management of pandemic H1N1 <i>Driedger SM, Cooper EJ, Jardine CJ, Furgal C</i> <i>University of Manitoba</i></p>	<p>1:30-3:00 PM <i>Room 11</i></p> <p>M3-H Symposium: Analyzing and Managing 21st Century Risks: Moving Beyond Newtonian Approaches <i>Chair: Bob Ross</i></p> <p>1:30 pm M3-H.1 The importance of risk type in selecting appropriate analytic approaches and management strategies <i>Ross RG</i> <i>Department of Homeland Security, Science and Technology Directorate</i></p> <p>1:50 pm M3-H.2 Assessment of complex adaptive system theory for homeland security risk management <i>Langbehn W</i> <i>Homeland Security Institute/ANSER</i></p> <p>2:10 pm M3-H.3 The modeler meets the expert on terrorist decision making: risk management based on two cultures <i>Lathrop JF, Post JM</i> <i>Innovative Decisions, Inc. and Political Psychology Program, Elliot School of International Affairs, George Washington University</i></p> <p>2:30 pm M3-H.4 Aviation risk management: the importance of government/industry collaboration <i>Hart CA</i> <i>National Transportation Safety Board</i></p>	<p>1:30-3:00 PM <i>Room 12/13</i></p> <p>M3-I Symposium: Synthesizing Studies for Evidence-Based Decisionmaking: Part 1, Meta-Regression and Related Methods <i>Chair: Lisa Robinson</i></p> <p>1:30 pm M3-I.1 Why meta-analyses and systematic reviews come to different conclusions about formaldehyde and leukemia <i>Goodman JE</i> <i>Gradient</i></p> <p>1:50 pm M3-I.2 Robust meta-analysis using median-quantile and nonparametric regression procedures: investigating the validity of benefit transfers <i>Kaul S, Boyle K, Pope J, Parmeter C, Kuminoff N</i> <i>Virginia Tech</i></p> <p>2:10 pm M3-I.3 Bayesian data combination for benefit transfer <i>Moeltner K</i> <i>Virginia Tech</i></p> <p>2:30 pm M3-I.4 Comparison of strategies to structure weight-of-evidence evaluations <i>Rbomberg LR</i> <i>Gradient</i></p>	<p>1:30-3:00 PM <i>Room 14</i></p> <p>M3-J Risk Assessment Methods Development <i>Chair: Patricia Gillespie</i></p> <p>1:30 pm M3-J.1 US Environmental Protection Agency Risk Assessment Forum action plan for advancing human health risk assessment <i>Fitzpatrick JW, Ohanian EV</i> <i>US Environmental Protection Agency</i></p> <p>1:50 pm M3-J.2 Chemical infrastructure risk assessment <i>Hawkins B, Shroy B, Montello B, Gooding R, Kolakowski J, Whitmire M, McGarvey D</i> <i>Battelle Memorial Institute, DHS Chemical Security Analysis Center</i></p> <p>2:10 pm M3-J.3 A Mathematical Compartment Model for estimating donor loss due to changes in the inter-donation interval <i>Forshee RA, Simonetti A, Fernando AM</i> <i>US Food and Drug Administration</i></p>
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<p>3:30-5:00 PM <i>Ballroom C1</i></p> <p>M4-A Emerging Theories of Risk Communication <i>Chair: David Berube</i></p> <p>3:30 pm M4-A.1 DART: Digital Amplification/attenuation of Risk Theory <i>Berube DM</i> <i>North Carolina State University</i></p> <p>3:50 pm M4-A.2 Probability paradoxes explained by the second uncertainty processor <i>Siegrist J, Ferson S, Lubmann C, Ginzburg L</i> <i>Rutgers University</i></p> <p>4:10 pm M4-A.3 Strategic frame alignment and the communication of risk <i>Cummings CL</i> <i>North Carolina State University</i></p> <p>4:30 pm M4-A.4 The role of construal level theory in risk communication <i>Zwickle AK, Wilson RS</i> <i>Ohio State University</i></p>	<p>3:30-5:00 PM <i>Ballroom C2</i></p> <p>M4-B Panel Discussion: Synthetic Biology and Risk Governance <i>Chair: Dana Genya</i></p> <p>3:30 pm M4-B.1 Synthetic Biology Applications: Health and the Environment <i>Carr PA</i> <i>Massachusetts Institute of Technology</i></p> <p>3:50 pm M4-B.2 DIYBIOSAFETY: Responsible Science for Do-It-Yourself Biologists <i>Kuiken T</i> <i>Woodrow Wilson International Center for Scholars</i></p> <p>4:10 pm M4-B.3 NGO Community Perspectives on Synthetic Biology <i>Hoffman EM</i> <i>Friends of the Earth</i></p> <p>4:30 pm M4-B.4 Comprehensive Environmental Assessment of Synthetic Biology Applications <i>Dana GV</i> <i>Dana & Sharpe Risk Associates</i></p> <p>4:50 pm M4-B.5 European synthetic biology: present and future regulatory trends <i>Lofstedt R</i> <i>Kings College London</i></p>	<p>3:30-5:00 PM <i>Ballroom C3</i></p> <p>M4-C Biomonitoring Data for Risk Assessment <i>Co-Chairs: Lesa Aylward and Scott Arnold</i></p> <p>3:30 pm M4-C.1 Development and use of toxicity based Human Biomonitoring (HBM) values by the German Human Biomonitoring Commission <i>Koch HM, Angerer J</i> <i>Institute for Prevention and Occupational Medicine (IPA), Ruhr-University Bochum</i></p> <p>3:50 pm M4-C.2 Challenges in interpreting and communicating human biomonitoring results <i>Haines DA, Murray JL, Donaldson SG</i> <i>Health Canada</i></p> <p>4:10 pm M4-C.3 Interpreting NHANES data on arsenic levels in urine using biomonitoring equivalents <i>Kirman CR, Hays SM, Aylward LL*, Ramasamy S, Schoeny R</i> <i>Summit Toxicology, US Environmental Protection Agency</i></p> <p>4:30 pm M4-C.4 Enhancing the Agency for Toxic Substances and Disease Registry's (ATSDR) site assessments with pharmacokinetic models and biomonitoring data <i>Wheeler JS, Worley RR, Ruiz P, Satarug S, Fowler DA</i> <i>Agency for Toxic Substances and Disease Registry, Atlanta, University of Queensland School of Medicine, Australia</i></p>	<p>3:30-5:10 PM <i>Room 6</i></p> <p>M4-D Symposium: Risk Management Actions for Emerging Contaminants <i>Chair: Andrew Rak</i></p> <p>3:30 pm M4-D.1 The changing landscape of chemical toxicity values and possible impacts to DoD Legacy Site Cleanup <i>Meyer AK</i> <i>Army Corps of Engineers</i></p> <p>3:50 pm M4-D.2 After the analysis: risk management actions for emerging contaminants <i>Yaroschak PJ</i> <i>Office of the Secretary of Defense</i></p> <p>4:10 pm M4-D.3 Closing the loop: an assessment of the life cycle of beryllium-containing materials in the Department of Defense <i>Scanlon KA, McDonald SM</i> <i>Concurrent Technologies Corporation</i></p> <p>4:30 pm M4-D.4 Naphthalene dosimeter for assessment of exposure for fuel handlers: a case study <i>Rak A</i> <i>Noblis</i></p> <p>4:50 PM M4-D.5 Methodology for using life cycle assessment to minimize environment, energy, water, and chemical liabilities <i>Cammarata C</i> <i>Concurrent Technologies Corporation</i></p>	<p>3:30-5:10 PM <i>Room 7</i></p> <p>M4-E Symposium: Microbial Safety of Fresh Produce, Spices and Herbs: Mitigating Risk from Farm-to-Table <i>Chair: Karin Hoetzger</i></p> <p>3:30 pm M4-E.1 Lessons learned from a preliminary quantitative microbial risk assessment for leafy greens <i>Schaffner DW, Danyluk MD</i> <i>Rutgers University</i></p> <p>3:50 pm M4-E.2 Produce consumption patterns in the US: importance for produce risk assessments <i>Hoetzger K, Ponillot R, Egan K, Dennis S</i> <i>Food and Drug Administration, Center for Food Safety and Applied Nutrition</i></p> <p>4:10 pm M4-E.3 Identification, monitoring and management of risks in the spice industry <i>Lawrence R, Brown SM</i> <i>McCormick & Company Inc</i></p> <p>4:30 pm M4-E.4 Surveillance sampling at import: characterizing risk <i>Van Doren JM, Kleinmeier D, Ma Y, Blodgett R, Westerman A, Ziobro GC, Muckenfuss M, Gill V, Hammack T, Parish M, Neil KP, Mettee S, Nsofor O, Gieraltowski L</i> <i>Food and Drug Administration and Centers for Disease Control and Prevention</i></p>
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4:50 pm **M4-E.5**
 Modeling of landscape and meteorological factors influencing the probability of pathogen isolation from an environmental location: *Listeria* spp. in the natural environment as a model system
Ivancek R, Grohn YT, Wells MT, Lembo Jr AJ, Saunders BD, Wiedmann M, Park S-S
Texas A&M University, Cornell University, Salisbury University, NYS Dept of Agriculture & Markets

3:30-5:00 PM
Room 8/9
M4-F Panel Discussion: Structuring Decision Processes to Manage Risks
Sponsored by DARSG
Chair: Jeffrey Keisler

3:30-5:10 PM
Room 10
M4-G Symposium: Assessing and Managing Carbon Nanomaterials Risks: Current and Future Approaches
Chair: Ron White
3:30 pm **M4-G.1**
 An overview of carbon nanomaterial toxicity research
White RH
Johns Hopkins University

3:50 pm **M4-G.2**
 Methods and uncertainties in carbon nanotube risk assessment
Kuempel ED
National Institute for Occupational Safety and Health

4:10 pm **M4-G.3**
 State of the science and information gaps regarding a comprehensive environmental assessment of an application of a carbon-based nanomaterial
Marenberg AA, Burch DF, Shatkin JA, Davis JM
ICF International, CLF Ventures, US Environmental Protection Agency

4:30 pm **M4-G.4**
 Life-cycle based approaches for evaluating carbon nanomaterials
Powers C, Gillespie P, Davis JM
National Center for Environmental Assessment, US Environmental Protection Agency

4:50 pm **M4-G.5**
 Managing risks of CNTs in a large company
David RM
BASF Corporation

3:30-5:10 PM
Room 11
M4-H Symposium: Adversary Modeling for Terrorism Risk Analysis Applications
Chair: Sara Klucking
3:30 pm **M4-H.1**
 Value focused modeling of adaptive adversaries for informing countermeasure decisions
John RS, Rosoff H
University of Southern California

3:50 pm **M4-H.2**
 Modeling and risk assessment of terrorist-counterterrorist interactions with Multi-Agent Influence Diagrams
Sentz K, Powell D, Ambrosiano J, Graves T
Los Alamos National Laboratory

4:10 pm **M4-H.3**
 Adaptive adversary risk analysis: linking models to primary data on terrorist behavior
Jackson BA, Frelinger DR, Hart J, Kavanagh J, Loidolt B, Wallace BA
RAND Corporation

4:30 pm **M4-H.4**
 Adaptive adversary agent-based modeling for CBRN terrorism risk analysis
Austin T, Sageman M, Luckey T, Cameron J
The Boeing Company

4:50 pm **M4-H.5**
 Plural models for adaptive adversary modeling
Buede DM, Ezell BC, Guikema SD, Lathrop JF, Mahoney SM, McLay LA, Post JM, Rothschild C
Innovative Decisions, Inc.

3:30-5:00 PM
Room 12/13
M4-I Symposium: Synthesizing Studies for Evidence-Based Decisionmaking: Part 2, Expert Elicitation
Chair: Lisa Robinson
3:30 pm **M4-I.1**
 Alternative methods for aggregation of expert judgments
Guvenc U, Small MJ, Morgan MG
Carnegie Mellon University

3:50 pm **M4-I.2**
 Combining experts' judgments: comparison of algorithmic methods
Hammitt JK, Zhang Y
Harvard University

4:10 pm **M4-I.3**
 Encoding the meanings of probability terms
Wallsten TS
University of Maryland

4:30 pm **M4-I.4**
 Expert elicitation of adversary preferences using ordinal judgments: methodology and applications
Wang C, Jamsbidi T, Bier VM
University of Wisconsin-Madison

4:50 pm **M4-I.5**
 Expert judgment and stakeholder preference modeling with probabilistic inversion
Cooke RM
Resources for the Future, TU Delft

3:30-5:10 PM
Room 14
M4-J Human Exposure to Contaminants in Food & Water
Chair: Anthony Fristachi
3:30 pm **M4-J.1**
 Updated estimates of human organotin exposures due to leaching from PVC pipe into drinking water
Fristachi A, Rice G, Little J, Xu Y, Adams W, Impellitteri C
Environmental Risk Resources, Virginia Tech, The University of Texas at Austin, US Environmental Protection Agency

3:50 pm **M4-J.2**
 Comparison of chemical composition of complex Disinfection By-product (DBP) mixtures produced by different treatment methods
Parvez S, McCurry D, Rice GE, Teuschler LK, Speth TF, Miltner RJ, Pressman JG
Oak Ridge Institute for Science and Education

4:10 pm **M4-J.3**
 Prevalence of variant Creutzfeldt-Jakob disease in the UK: estimation from dietary exposure to bovine spongiform encephalopathy during the period 1980 to 1996
Chen CC, Wang YH, Wu KY, Chang HY
National Health Research Institutes, Taiwan

4:30 pm **M4-J.5**
 Quantitative risk assessment of listeriosis due to consumption of raw milk
Pradhan AK, Latorre AA, Van Kessel JS, Karns JS, Schukken YH
University of Maryland, University of Concepcion-Chile, USDA/ARS-Beltsville, Cornell University

6:15 - 8:15 PM

P Poster Session

EBASG

P.1 Seeing the forest through the trees: NRD and dynamic ecosystems
Cantor RA, Menzje CA, Dearthoff TL, Hulme-Lowe CK, Wickwire WT
Exponent

Decision Analysis & Risk

P.2 Quantitative risk model for foodborne pathogens in herbs and spices
Fedoruk A, Davidson VJ, Fazil A
University of Guelph, Public Health Agency of Canada

Risk, Policy and Law

P.3 China's newly promulgated regulation on the environmental management of new chemical substances
Cragin DW, Silverman KC
Merck & Co.

Biological Stressors

P.4 Comparing and prioritizing pathogen risks
Joe AL, Gurian PL, Olson MS, Teng J, Marquez EB, Kumar A, Pepper I, Gerba CP, Galada HC
Drexel University

P.5 Increasing the temperature of high temperature, short time pasteurization may increase the risk of listeriosis from consumption of pasteurized fluid milk.
Stasiewicz M, Martin N, Laue S, Wiedmann M
Cornell University

P.6 Identifiability of bioaerosol size fraction from environmental sampling
Hong T, Gurian PL
Drexel University

Nanomaterials: Occupational Exposure Limits

P.7 Proposal for an occupational exposure limit of carbon nanotubes based on their risk evaluation
Nakanishi J, Gamo M, Ema M, Ogura I, Kobayashi N
Advanced Industrial Science and Technology (AIST)

P.8 Risk assessment of nanomaterials - fullerene C60
Shinohara N, Gamo M, Nakanishi J
National Institute of Advanced Industrial Science and Technology

P.9 Risk assessment of nanomaterials - titanium dioxide (TiO₂)
Gamo M, Ogura I, Kobayashi N, Ema M, Nakanishi J
National Institute of Advanced Industrial Science and Technology (AIST)

P.11 Quantifying the interdependent effects of supply chain disruptions and mitigation strategies
MacKenzie CA, Barker K
University of Oklahoma

P.12 International symposium on cultural property risk analysis: report on an SRA sponsored event
Waller RR, Dinis MF
Protect Heritage Corp., Faculdade de Ciências e Tecnologia da Universidade Nova de Lisboa

Security & Defense

P.13 Extending methods of vulnerability analysis to address resilience and robustness
Tas S, Bier VM
University of Wisconsin at Madison

P.14 Subsidizing to disrupt a terrorism supply chain - a four-player game
Shan X, Zhuang J
University at Buffalo, The State University of New York

P.15 The chemical terrorism risk assessment
Cox J, McGarvey D, Whitmire M, Hawkins B, Montello B, Shroy B
DHS Chemical Security Analysis Center (CSAC), Battelle Memorial Institute

P.16 Risk screening assessments at Los Alamos National Laboratory (Part 1. Human Health)
Fristachi A, Miranda R
Environmental Risk Resources, Los Alamos National Laboratory

P.17 Ensuring consistency in risk analysis event trees and consequences
Streetman SS
Data Architecture Solutions, Inc., DHS

P.18 ITRA sensitivity study: subway event response analysis
McMillan NJ, Tollar E, Wightman J, Huckett J
Battelle

Ecological Risk

P.19 Analysis of coastal pollution: looking for water quality index which correlates physicochemical parameters and biomarkers in native aquatic plants used as sentinels.
Dopchiz LP, Martin P, Michieli JL, Demichelis SO
University John F. Kennedy of Argentina, National University of La Plata

P.20 Integral plan of management for chemical emergencies in Lanús-Argentina
Lopez CR, Demichelis SO
National University of Lanus

P.21 Population risks in a small coastal town of the Rio de la Plata river: a case of study
Medrano D, Demichelis SO
National University of Lanus

P.22 Landslide risk assessment in fundamental roads of Bolivia using multi-criteria and Geographic Information Systems analysis
Ledezma FFL
Water and Sanitation Centre

P.23 Analysis of changes in density of distribution of air temperature over last decades using quantile regression method and radiosonde measurements
Timofeev AA, Sterin AM
RIHMI-WDC

P.24 Preliminary assessment of the carbon footprint in the chemical industry in the field of basic chemistry
Villarraga Farfán EJ
Universidad de los Andes

P.25 Meteorological risks reduction in forecasting convective events from satellite data
Agurenko AO, Korshunov AA
RIHMI-WDC

P.27 Evaluation of formaldehyde air emissions from a washing machine and potential human exposure
McCready D, Arnold S, Fontaine D
The Dow Chemical Company

P.28 Update to the U.S. EPA's guidelines for (human) exposure assessment and monitoring
Tulve NS, Olsen M, Broder M
US Environmental Protection Agency

P.29 An in vitro to in vivo extrapolation approach for conducting a cumulative risk assessment for phthalate esters
Choi K, Campbell J, Clewell H
The Hamner Institutes for Health Sciences

P.30 Exposure assessment for ambient hexavalent chromium (Cr(VI)) in Japanese industrial area
Ono K, Toyoda T, Shimada S, Nezu T
National Institute of Advanced Industrial Science and Technology

P.31 Blood mercury concentration and fish consumption: risk and perceptions of risk among urban and coastal mother in Taiwan
Jiang CB, Chien LC, Han BC, Hsu CS
TMU

P.32 Mouthing frequency of children under 2 years old in Taiwan
Tsou MC, Chien LC, Özkaynak H, Beamer P, Dang W
TMU

P.33 Exposure assessment of metal concentration and relevant factors on women reproductive ability
Lei HL, Chien LC, Liao KW, Yeh CY
Taipei Medical University

P.34 A study on alternative risk assessment scheme of flame retardants
Kotani K, Managaki S, Masunaga S
Yokohama National University

P.35 Health risk assessment of metal toxicity from the consumption of fish from different water layers: application of mixture risk assessment method
Hsu HT, Ling MP, Wu CC, Yang KR
China Medical University

P.36 Substance flow-based exposure assessment for HBCD from a life-cycle perspective in Japan
Managaki S, Kotani K, Hondo H, Kobayashi T, Miyake A, Masunaga S
Yokohama National University

- P.37** Conducting uncertainty and sensitivity analyses in radiological risk assessment with the probabilistic database of SYMBIOSE
Simon-Cornu M, Beaugelin-Seiller K, Calmon P, Mourlon C, Nicoulaud V, Garcia-Sanchez L, Gonze MA
Institut de Radioprotection et de Surete Nucleaire (IRSN), DEI, Cadarache, France
- P.38** Young kids potentially at greatest risk due to exposures to perfluorinated compounds through water consumption
Dalajants C, Wu KY
Institute of Occupational Medicine and Industrial Hygiene, College of Public Health, National Taiwan University
- P.39** Identifying and evaluating drinking water contaminants of emerging concern: a state perspective
Greene CW, Goeden HM, Dady JM, Ross M, Shubat PJ
Minnesota Department of Health
- P.40** European solvents industry group consumer generic exposure scenario tool
Zaleski R, Qian H, Zelenka M, George-Ares A, Money C
ExxonMobil Biomedical Sciences, Inc; ExxonMobil Petroleum and Chemical
- P.41** Quantitative model evaluation: lessons learned from symposia on getting the numbers right
von Stackelberg KE, Williams PRD
E Risk Sciences, LLP
- P.42** Gene-environment interactions in exposure-response between organophosphate pesticide exposures and the phenotypic anchor of acetylcholinesterase inhibition in farmworkers
Griffith WC, Guerrette ZN, Moreira EG, Thompson B, Coronado GD, Vigoren EM, Faustman EM
University of Washington, Fred Hutchinson Cancer Research Center, State University of Londrina
- P.43** Proposition 65 dermal exposure assessment for DEHP in clothing with plasticized images
Williams E, Keenan J, Le M, Gaffney S
ChemRisk LLC
- P.44** Understanding the temporal patterns of aerosols at Hsin-Chuang in Taipei by dynamic factor analysis
Yu HL, Lin YC
National Taiwan University
- P.45** Too big or not too big? That is the systemic risk question!
Pai PK
The University Texas of the Permian Basin
- P.46** Contaminant dispersion modeling in complex urban landscapes using hybrid computational fluid dynamics techniques
Mazumdar S, Isukapalli S
UMDNJ-RW Johnson Medical School and Rutgers University
- P.47** Ultrafine particles in combustion source emissions: the role of waste-to-energy facilities
Foster SA, Chrostowski PC, Porter TJ
CPF Associates, Inc. and Wheelabrator Environmental Technologies, Inc.
- P.48** CAREX Canada: Using risk-based indicators in support of prioritizing actions to reduce or eliminate exposures to known and suspected carcinogens in the environment
Setton E, Hystad P, Poplawski K, Cheasley R, Cervantes A, Nicol AM, Demers P
University of Victoria, University of British Columbia, Cancer Care Ontario
- P.49** Para-occupational exposure to pesticides in agricultural families: amissed opportunity for Risk Assessment
Blewett C, Mckenzie A, Nicol A-M
University of British Columbia
- P.50** Use of random forest for estimation of significant exposures in case control studies of foodborne diseases
Gu W, Cole D, Hoekstra M
Federal Government
- P.51** An Exposure Index estimation framework for the National Children's Study (NCS)
Georgopoulos PG, Brinkerhoff CJ, Isukapalli SS, Liou P, Dellarco M, Landrigan P
Environmental & Occupational Health Sciences Institute
- DRSG**
- P.52** A unified system biology data integration by using a modified JDL framework
Mohapatra AK
Health Canada Alberta Region
- P.53** Development of a human PBPK model for carbaryl using an in vitro to in vivo extrapolation approach and its application in reverse dosimetry
Yoon M, Yang Y, Tan Y-M, Clewell HJ
The Hamner Institutes for Health Sciences
- P.54** An analysis of the growth curves of control Sprague-Dawley rats fed ad-libitum from weaning to 90 days of age
Walker JT, Walker TD, Walker OA
US Environmental Protection Agency
- P.55** A mathematical description of National Toxicology Program (NTP) 2-year growth curves of male and female F344/N rats
Walker JT, Walker TD, Walker OA
US Environmental Protection Agency
- P.56** Air pollution, abnormal birth weight and obesity may increase the risk of developing asthma during adolescence
Tsai MS, Pan SC, Lin MH, Ho WC, Chen PC, Lin RS
China Medical University
- P.57** Subacute inhalation toxicity assessment of fly ash from industrial waste incinerators in Korea
Shim IS, Yang SY, Yoon JH, Ryu TK, Seo GB, Choi M, Kim PJ
National Institute of Environmental Research
- P.58** A proposed framework for evaluating alternative temporal patterns of exposure for risk characterization
Parker AL, Maier A, Haber LT, Sweeney LM
Toxicology Excellence for Risk Assessment (TERA)
- P.59** Shipwrecked: finding the life raft of knowledge for risk assessment
Nance P, Haber L, Maier A, Patterson J
Toxicology Excellence for Risk Assessment
- P.60** Use of physiologically-based pharmacokinetic models to assess whether epidemiologic associations are due to reverse causality
Loccisano AE, Longnecker MP, Campbell JL, Andersen ME, Clewell HJ
The Hamner Institutes for Health Sciences
- P.61** Effects of early life exposure to air pollution on childhood ADHD among newborn infants in Taiwan
Lin MH, Ho WC, Chen PC, Cheng TJ, Wu TN
China Medical University
- P.62** Ozone exposure is associated with cardiovascular diseases mortality based on both acute and longer term analyses
Ho WC, Lin MH, Lin YS, Chen PC, Cheng TJ, Wu TN
China Medical University
- P.63** Review of issues relevant to ambient air quality criteria
Haber LT, Kaden DA, Meek ME, Schroeder J
TERA, ENVIRON, University of Ottawa, Ontario Ministry of the Environment
- P.64** Using information from alternative models to guide research in mixtures: a case study on interactions between Polycyclic Aromatic Hydrocarbons (PAHs) with different mechanisms of action in zebrafish
Fleming CR, Di Giulio RT, Lambert JC
Oak Ridge Institute for Science and Education, Duke University, US Environmental Protection Agency, Cincinnati, OH

P.65 Use of genomics data and other early effect biomarkers in risk assessment: opportunities and challenges

Dourson ML, Haber LT, Maier A, Reichard J, Abraham I

TERA

P.66 PBPK modeling with atrazine: simulation of the dynamic changes in an in vitro system to support in vitro to in vivo extrapolation across species

Campbell, Jr. JL, Andersen ME, Kim D, Yi KD, Pastoor T, Breckinridge CB, Clewell, III HJ

The Hammer Institutes, Syngenta, LLC

P.67 The influence of air pollution on cardiovascular and pulmonary function and exercise capacity: Canadian Health Measures Survey (CHMS)

Cakmak S, Dales R, Leech J, Liu L
Health Canada

Risk Communication

P.68 Extending your community-based research to other communities: US EPA's C-FERST (Community-Focused Exposure and Risk Screening Tool)

Schultz BD, Zartarian VG, Geller A, Barzyk T, O'Shea S

US Environmental Protection Agency

P.69 Varieties of emotional judgment and its determinants in case of the nuclear power

Jung J, Song Y, Kim S

Chungju National University

P.70 Trust in organizations relevant to the Tohoku Earthquake and to the crisis at the Fukushima Daiichi nuclear power plant

Nakayachi K

Doshisha University

P.71 Risk communication in multi-organizational complex crisis: experiences from key decision makers

Lemus-Martinez C, Lemyre L, Pinsent C, Boutette P, Johnson C, Blust S, Corneil W
University of Ottawa

P.72 Experimental investigation into public response to food terrorism vs. accidental contamination

Cuite CL, Johnson BB, McWilliams RM, Hallman WK

Rutgers, The State University of New Jersey

P.73 Impacts of science and technology citizens' schools on expert presenters

Foster CB

University of South Carolina

P.74 Front page or 'buried' beneath the fold? Media coverage of carbon capture and storage

Boyd AB, Pavaglio TB, Emsiedel EF
University of Calgary

P.75 The empirical test of several vulnerability hypotheses in terms of risk perception and experience

Seokchang Jung, Seoyong Kim, Jaesun Wang

Korea University

P.76 Perception of causes of deaths from diseases, accidents and suicide in persons of young and seniors

Kugibara NK

Osaka University

P.77 Government's persuasion strategies and acceptance/reactance effect in risk conflicts

Jaesun Wang, Seoyong Kim, Seokchang Jung

Ajou University

P.78 Mapping modeled health risk for environmental hazards: the influence of three map features on risk beliefs and perceived uncertainty for maps of modeled cancer risk from air pollution

Severtson DJ, Myers J
UW-Madison

P.79 A New York (or Pennsylvania) state of mind: cross-state differences in print media coverage of drilling for natural gas in the Marcellus Shale region

Evensen DT

Cornell University

P.82 A proposed model to analyze audiences' behavioral barriers to adopting climate change mitigation strategies

Marlatt HL

Colorado State University

P.83 Detection of local climate change through individual experience

Howe PD

Pennsylvania State University

P.84 Risk perception of climate change and nuclear power generation: from recent Japanese survey results

Aoyagi M, Tasaki T, Yoshida A, Kanamori Y

National Institute for Environmental Studies

P.85 The role of risk perception in potential vaccination uptake for West Nile Virus

Trumbo CW, Zielinski-Gutiérrez E, Kronauge C, Evans S

Colorado State University, Centers for Disease Control, Weld County (CO) Department of Health

P.86 Scary news: how journalists view media framing of public response to terrorist attacks

Swain KA

University of Mississippi

P.87 BP's use of twitter as a crisis communication tool during the Gulf of Mexico oil spill response phase

Jordan LA, Swain KA

University of Mississippi

P.88 Trust and responsibility attributions: variations across hazard managers in accidental and intentional food contamination incidents

Johnson BB, Cuite C, Hallman W

Decision Research; Rutgers University

P.89 In Google We Trust: presentation and information seeking of uncertain information about the 2011 Japan nuclear crisis

Steinhardt JS, Scherer CW, Buckingham JL, Kermis AD, Klopp AL, Kubli KA, Ross E

Cornell University

P.90 Investigating the role of identities and opinion leadership on risk information seeking and sharing about proposed natural gas drilling in New York's Marcellus Shale

Clarke CE

Cornell University

P.91 Weighing the risks of immunization: a review of public and stakeholder perceptions of vaccine risk to inform policies and programs

Brewer J, Sperber B, Raquet J, Briley C

The Keystone Center

Risk and Development

P.92 Spatio-temporal analysis of black spots of traffic accidents in Santiago, Chile

Bronfman NC, Jiménez RB, Blázquez C, Guerra K

Universidad Andres Bello

P.93 Modeling and optimization of risk in fuel transportation networks for urban areas

Barrios I, Velasco N, Gutierrez E, Munoz F

Universidad de los Andes

P.94 The influence of integrity-based and competence-based trust on public acceptability of electricity generation sources: the case of Chile

Bronfman NC, Jiménez RB, Arévalo P

Universidad Andres Bello

P.95 Experimental design for the assessment of the animal welfare during cattle slaughtering with and without previous stunning

Tarres JT, Ribo OR, Serratos JS

European Food Safety Authority

P.96 Multi-attribute assessment method for pharmacy compounding

Murphy MM, Rahaman F, Claycamp HG

Food and Drug Administration (FDA)

P.97 Communicating about One Health: examining the risks of a "shared risk" paradigm

McComas K, Decker D, Rickard L, Wild M, Higgins C, Wong D, Castle K

Cornell University, National Park Service

P.98 Target excess lifetime cancer risks commonly used in practice

*Amaral ME, Baker K, Magee B**

ARCADIS

Works-In-Progress

P.99 Assessing the noncancer chemical risk of 1,3-dibromobenzene: Preliminary surrogate approaches and QSAR models employing long-term LOAELs and chemical structures of halogenated benzenes

Collar CJ, Wang NCY
ORISE/US Environmental Protection Agency

P.100 Risk perception, public opinion and the acceptability of public decisions in Quebec (Canada)
de Marcellis-Warin N, Peignier I
CIRANO - Ecole Polytechnique

P.101 Media coverage, “false balance,” and the autism-vaccine controversy: a preliminary experiment
Dixon G, Clarke C
Cornell University

P.102 A tale of two systems: synergy in managing risks to people and to museum collections
*Hawks C, Waller R**
Protect Heritage Corp.

P.103 Carcinogenic risk assessment for the use of methylene blue in dairy cows
Zhou T, Gaido K, Qiu JS, Oriani J, Ekelman K
US Food and Drug Administration, Center for Veterinary Medicine

P.104 Breastfeeding and number of children are relevant risk factors in breast cancer patients from an Argentine coastal midclass population
Demichelis SO, Cermignani L, Segal-Eiras A, Giacomi N, Croce MV
National University of La Plata, University J.F. Kennedy of Argentina, Buenos Aires

P.105 Safety data sheet alteration during alignment with the Globally Harmonized System of Classification (GHS) and implications for chemical manufacturers, suppliers, and distributors
Grespin ME, Le MH, Panko JM
ChemRisk

P.106 Explaining risk information seeking: food risk versus industrial risk
Kuttschreuter M, Misana-ter Huurne EFJ
University of Twente

P.107 Towards an integrated approach for monitoring environment, health and safety aspects within an organization
Mazri C, Jovanovic A, Balos D
INERIS

P.108 Objective-based risk assessment methods for advanced nuclear power plant deployment
Talabi S
Carnegie Mellon University

P.109 Rat thermoregulation: exploration of its value in risk assessment of mixtures of Type I and Type II pyrethroid insecticides
Pato A, Sosa Holt C, Wolansky MJ
University of Buenos Aires/Argentine National Research Council

P.110 The southern states outbreak sequence: surveying survivors and informing risk management
Youngblood SA, Chaney PL, Weaver GS
Auburn University

P.111 A statistical approach for judging stability of whole mixture chemical composition over time for highly complex disinfection by-product mixtures from EPA's four lab study
Teuschler LK, Aume LS, Rice GE, Simmons JE, Pressman JG, Narotsky MG, Speth TF, Milner RJ, Hunter ES, Richardson SD
US Environmental Protection Agency, Battelle

P.112 An updated inhalation unit risk factor for arsenic and inorganic arsenic compounds based on a meta-analysis of epidemiology studies
Erraguntla NK, Sielken RL, Valdez-Flores C, Grant RL
Texas Commission on Environmental Quality

P.113 Assessing the risk of Asian gypsy moth, *Lymantria dispar* (Linnaeus), introduction into the United States on maritime shipments
Fowler G, Takeuchi Y, Sequeira R, Fussell W, Simon M, Lougee G, Sato A, Xu Y
USDA-APHIS

P.114 Risk analysis based on coastal biomonitoring: synergic effect of global change on stress generated by xenobiotics in Antarctic key species of trophic webs
Demichelis SO, Di Fonzo CI, Dopchiz LP, Zappala CM, Rosa GA, Genovese G, Lo Nostro F, Lavarias SML, Guiralde MC, Ansaldo M
Argentine Antarctic Institute, UAJFK, UBA, UNLP

P.115 You don't test for nothing: beliefs about exposure from living on dioxin-contaminated soil
Zikmund-Fisher BJ, Diebol JK, Turkelson AE, Franzblau A, Allerton L, Parker EA
University of Michigan

P.116 Aggregate risk assessment of inhalable particle matter
Xu LY, Shu X
State Key Joint Laboratory of Environmental Simulation and Pollution Control, School of Environment, China

P.117 The probability statistics analysis of food intake input distribution by sensitivity groups (YOPI) of food-borne disease for quantitative microbial risk assessment
*Choi EJ, Kim HT, Song BR, Babk GJ**
Department of Food and Nutrition, Kumasan National University

P.118 Risk and crisis communication requirements following an acute chemical incident
Pearce JM, Rogers MB
King's College London

P.119 Japanese consumers' risk perception of beef: the effect of nuclear explosion
Hosono H, Kumagai Y, Sekizaki T
The University of Tokyo

P.120 Radon in the public eye: a review of the evidence for radon risk perception, risk communication and mitigation potential
McKenzie A, Sloan B, Blewett C, Nicol AM
Carex Canada, University of British Columbia

P.121 Quantifying an example systems approach used to mitigate the risk of establishment of fruit flies
Caton BP, Miller CE, Jang EB
USDA-APHIS, Consultant, USDA-ARS

P.122 The influence of social media on risk perception and reputation risk
Hosseinali Mirza V, de Marcellis-Warin N, Warin T
Ecole Polytechnique de Montreal

P.123 Arsenic in apple juice: myth versus reality
Charnley G, Melnikov F, Beck B
HealthRisk Strategies, Gradient

P.124 Genomic changes in primary human uroepithelial cells following 24 hour exposure to mixtures of arsenite and its trivalent methylated metabolites
Clewell HJ, Efremenko A, Black M, Thomas RS, McKim J, Wilga PC, Arnold LL, Gentry PR, Yager JW
The Hamner Institutes for Health Sciences, CeeTax, Inc., University of Nebraska Medical Center, Environ International, University of New Mexico, Albuquerque

P.125 A critical analysis of ecological risk assessment endpoints for biofuel feedstocks
*Ridley CE, Frederick RJ**
US Environmental Protection Agency

P.126 Variability in air quality models influences social cost estimates for air emissions
Gilmore EA, Moore A, Murphy BN, Adams PJ
University of Maryland, Carnegie Mellon University

10:30 AM-Noon	10:30 AM-Noon	10:30 AM-Noon	10:30 AM-Noon	10:30 AM-Noon
<i>Ballroom C1</i>	<i>Ballroom C2</i>	<i>Ballroom C3</i>	<i>Room 6</i>	<i>Room 7</i>
T2-A Climate Change Perceptions and Their Consequences	T2-B Symposium: Seafood Safety Following the Deepwater Horizon Oil Spill	T2-C Dose Response Modeling	T2-D Symposium: Climate Change Impacts and Adaptation Strategies: Evolving Roles of Risk Analysis	T2-E Health, Safety and Society
<i>Chair: Chris Clark</i>	<i>Chair: Mike Bolger</i>	<i>Chair: Juleen L. Lam</i>	<i>Chair: Arthur Rypinski</i>	<i>Chair: Tee Guidotti</i>
10:30 am T2-A.1 What, me worry? The role of affect in information seeking <i>Yang JZ, Kablor L</i> <i>SUNY-Buffalo</i>	10:30 am T2-B.1 A review of seafood safety after the Deepwater Horizon blowout <i>Goblke JM, Doke D, Tipre M, Leader M, Fitzgerald T</i> <i>University of Alabama at Birmingham, School of Public Health</i>	10:30 am T2-C.1 Bayesian Model averaging for benchmark dose estimation from continuous data <i>Shao K</i> <i>Carnegie Mellon University</i>	10:30 am T2-D.1 Anticipating and adapting to climate change in coastal deltas <i>Burkett VR</i> <i>United States Geological Survey, Department of the Interior</i>	10:30 am T2-E.1 UK health and safety and the “Lofstedt review” <i>Lofstedt R</i> <i>Kings College London</i>
10:50 am T2-A.2 Climate change in the Indian Country: culture, beliefs, risk perception and behavior <i>Safi AS, Smith WJ, Chief K, Liu Z</i> <i>University of Michigan</i>	10:50 am T2-B.2 A retrospective on the multiagency response to seafood safety following the 2010 Deepwater Horizon Oil Spill <i>Dickey R</i> <i>FDA, Gulf Coast Seafood Laboratory</i>	10:50 am T2-C.2 Developing a Bayesian approach to dose response assessment: an application to trihalomethanes in drinking water <i>Lam JL, Fox MA, Burke TA</i> <i>Johns Hopkins University, Bloomberg School of Public Health</i>	10:50 am T2-D.2 Using Bayesian Networks to evaluate sea-level rise <i>Plant NG</i> <i>United States Geological Survey, Department of the Interior</i>	10:50 am T2-E.2 Public safety and risk assessment <i>Ball DJ, Ball-King LN</i> <i>Middlesex University, London</i>
11:10 am T2-A.3 Energy systems and climate change: Canadian perspectives and evaluations of trade-offs and values <i>Boyd AD, Einsiedel EF</i> <i>University of Calgary</i>	11:10 am T2-B.3 Assessing seafood safety during the Deepwater Horizon oil spill MC252 <i>Dickhoff WW, Walker C, Ylitalo G, Wilson S, Stein J</i> <i>NOAA Fisheries</i>	11:10 am T2-C.3 Estimating noncancer human health risks associated with acrolein inhalation using the Straw Man Model <i>Lynch MT, Hattis D, Greco S, Belova A</i> <i>ABT Associates Inc.</i>	11:10 am T2-D.3 National Climate Assessment & US adaptation strategies <i>Rypinski AD, Cantral R</i> <i>US Department of Transportation</i>	11:10 am T2-E.3 Using the concept of systemic risks to approach social unrest <i>Renn O, Jovanovic A, Schroeter R</i> <i>Stuttgart University</i>
11:30 am T2-A.4 The potentially alarming effect of communicating CCS monitoring <i>L’Orange Seigo S, Wallquist L, Doble S, Siegrist M</i> <i>ETH Zurich</i>	11:30 am T2-B.4 The state of Mississippi’s response to the Gulf Oil Spill <i>Bronn A, Rodriguez J, Hagood G, Kang X, Armbrust K, Jewell J, Diaz D, Gatian N, Folmer H</i> <i>Mississippi State University, Office of the State Chemist-MS, Mississippi Department of Marine Resources, Mississippi Department of Environmental Quality</i>	11:30 am T2-C.4 Application of a data fusion framework to integrate toxicity data for a petroleum hydrocarbon mixture <i>Dyck R, Sadiq R, Zargar A, Islam S, Mohapatra A</i> <i>Health Canada Alberta Region</i>	11:30 am T2-D.4 Risk assessment strategies for adaptation and sea-level rise <i>MacDonell MM, Rypinski AD</i> <i>Argonne National Lab</i>	11:30 am T2-E.4 Enterprise- and workplace-level risk management and the Deming Cycle <i>Guidotti TL</i> <i>Medical Advisory Services</i>

10:30 AM-Noon <i>Room 8/9</i>	10:30 AM-Noon <i>Room 10</i>	10:30 AM-Noon <i>Room 11</i>	10:30 AM-Noon <i>Room 12/13</i>	10:30 AM-Noon <i>Room 14</i>
T2-F Error in Risk Assessment <i>Chair: Robin Keller</i>	T2-G Games and Digital Platforms for Risk Communication <i>Chair: Janet Yang</i>	T2-H Bioterrorism: Analyzing Agents and Risks <i>Chair: Patricia Underwood</i>	T2-I Symposium: Regulation and Risk <i>Chair: Rick Belzer</i>	T2-J Risk Communication - Networks across Hazards and along Life Cycles <i>Chair: Christy Powers</i>
10:30 am T2-F.1 Time inconsistency of risk perception <i>Feng TJ, Keller LR, Wang YT</i> <i>Fudan University, University of California, Irvine</i>	10:30 am T2-G.1 Informed public choices for low-carbon electricity portfolios using a portfolio-building computer decision tool <i>Fleishman LA, Bruine de Bruin W, Morgan MG</i> <i>Carnegie Mellon University, RAND Corporation</i>	10:30 am T2-H.1 Dose-response research to support risk-based site-specific decisions following an anthrax attack <i>Taft SC, Comer JE, Hines SA, Barnewall RE, Nichols TL</i> <i>US Environmental Protection Agency, Battelle Memorial Institute</i>	10:30 am T2-I.1 Regulatory science and policy - a case study of the National Ambient Air Quality Standards <i>Dudley SE</i> <i>The George Washington University</i>	10:30 am T2-J.1 The value of knowledge-based decisions: improving terrorism defense by integrating multi-criteria decision analysis, game theory, and the value of information <i>Hartz RT, Coles JB, Keisler JM, Zhuang J, Linkov I</i> <i>University of Pittsburgh, University at Buffalo, University of Massachusetts, US Army Engineer Research and Development Center</i>
10:50 am T2-F.2 Factoring out bias and overconfidence: advanced bias correction in risk analysis <i>Ferson S, Siegrist J, Balch M, Finkel A</i> <i>Applied Biomathematics, Rutgers University, University of Pennsylvania Law School</i>	10:50 am T2-G.2 LinkIT - a gaming approach for eliciting mental models about risk <i>Cao Y, McGill WL</i> <i>The Pennsylvania State University</i>	10:50 am T2-H.2 Dose-response study for mice exposed to single and multiple doses of <i>Francisella tularensis</i> type A strains <i>Huang Y, Haas CN, Rose JB, Bolin CA</i> <i>Michigan State University</i>	10:50 am T2-I.2 The extent of uncertainty analysis for major proposed regulations <i>Ellig JR</i> <i>Mercatus Center</i>	10:50 am T2-J.2 Modeling the safety and efficacy of vaccines through the life cycle <i>King DB</i> <i>US Food and Drug Administration</i> <i>CBER</i>
11:10 am T2-F.3 Accounting for professional judgment in risk maturity: a case study from the power utility sector <i>Mauelshagen CW, Denyer D, Pollard SJ</i> <i>Cranfield University, UK</i>	11:10 am T2-G.3 SortIT - an online multiplayer adventure game for pairwise ranking of risks <i>Calle JJ, McGill WL</i> <i>The Pennsylvania State University</i>	11:10 am T2-H.3 Updating data for the Department of Homeland Security's Bioterrorism Risk Assessment <i>Hawks ES, Burns JM, Bowdle DA, Middleton JK</i> <i>Battelle</i>	11:10 am T2-I.3 Uncertainty and estimates of the benefits of reducing fine particle pollution <i>Fraas A, Lutter R</i> <i>Resources for the Future</i>	11:10 am T2-J.3 A framework for regional all-hazards risk assessment and mitigation <i>Chatterjee S, Abkowitz MD</i> <i>CREATE- University of Southern California, Vanderbilt University</i>
11:30 am T2-F.4 Assessing climate as a factor in crop yield in SubSaharan Africa <i>Cullen A, Smoliak B, Po-Chedley S, Anderson CL</i> <i>Evans School of Public Affairs, Department of Atmospheric Sciences, Program on Climate Change, University of Washington</i>	11:30 am T2-G.4 Visualizing risk and uncertainty: an experimental study <i>Eosco GM, Scherer CW</i> <i>Cornell University</i>	11:30 am T2-H.4 Gap Analysis Methodology for the Department of Homeland Security's Bioterrorism Risk Assessment <i>Middleton JK, Hale TL, Lordo RA, Hockett JC</i> <i>Battelle</i>	11:30 am T2-I.4 Utility of regulations and inspection: food safety example <i>Williams RA</i> <i>Mercatus Center at George Mason University</i>	11:30 am T2-J.4 What affects the sharing of risk knowledge in government networks - a social network analysis <i>Shaw H, Rocks SA, Denyer D</i> <i>Cranfield University</i>

<p>1:30-3:00 PM <i>Ballroom C1</i></p> <p>T3-A Fukushima and Risk Communication <i>Chair: Gina Eosco</i></p> <p>1:30 pm T3-A.1 Explaining radiation risks: a comparison of media coverage of Fukushima, Chernobyl and TMI <i>Friedman SM</i> <i>Lehigh University</i></p> <p>1:50 pm T3-A.2 How the accident at Fukushima affected the public's perception of nuclear power: results of a longitudinal survey <i>Siegrist M, Visschers VHM</i> <i>ETH Zurich, Switzerland</i></p> <p>2:10 pm T3-A.3 Calm panic of the Japanese against the complex disaster 3-11 <i>Tsuchida S</i> <i>Kansai University</i></p> <p>2:30 pm T3-A.4 Nuclear energy and the contingent impact of media attention <i>Besley JC</i> <i>University of South Carolina</i></p>	<p>1:30-3:00 PM <i>Ballroom C2</i></p> <p>T3-B Diverse Modeling Approaches for Exposure Assessment <i>Chair: Mark Weir</i></p> <p>1:30 pm T3-B.1 A novel modeling system for studying the effects of climate change on exposures to aeroallergens and co-occurring gas pollutants <i>Isukapalli SS, Zhang Y, Bielory L, Robock A, Georgopoulos PG</i> <i>Environmental and Occupational Health Sciences Institute, Rutgers University</i></p> <p>1:50 pm T3-B.2 A tiered approach to dermal exposure assessment for antimicrobial pesticides <i>McDougal JN, Guy RH*, Leighton T, Bronaugh RL, Shah PV, Olin SS, O'Brien TM, Canady RA</i> <i>Wright State University, University of Bath, UK, US Environmental Protection Agency, US Food and Drug Administration, ILSI Research Foundation, Ecolab</i></p> <p>2:10 pm T3-B.3 Uncertainty in multimedia mass-balance models: an evaluation by fuzzy arithmetic and probability bounds analysis <i>Oberg T, Iqbal MS</i> <i>Linnaeus University</i></p> <p>2:30 pm T3-B.4 Stochastic modeling of water reclamation treatment redesign suggestions addressing cryptosporidiosis risk at a recreational spray park <i>Weir MH, Razzolini MTP, Rose JB, Masago Y</i> <i>Michigan State University</i></p>	<p>1:30-3:00 PM <i>Ballroom C3</i></p> <p>T3-C Symposium: Improving Problem Formulation and Dose-Response Beyond Science and Decision, Part 1 <i>Co-Chairs: Julie Fitzpatrick, Rick Becker</i></p> <p>1:30 pm T3-C.1 The collaborative ARA adventure: extending and expanding discussions of problem formulation and dose-response <i>Pottenger LH</i> <i>The Dow Chemical Company</i></p> <p>1:50 pm T3-C.2 Linking problem formulation to dose-response assessment <i>Paoli G</i> <i>Risk Sciences International</i></p> <p>2:10 pm T3-C.3 The importance of mode of action <i>Meeke ME</i> <i>University</i></p> <p>2:30 pm T3-C.4 Where the rubber meets the road: a practical methods compendium for risk assessors <i>Haber LH, Kroner OL</i> <i>TERA</i></p>	<p>1:30-3:00 PM <i>Room 6</i></p> <p>T3-D Disasters and Infrastructure Interdependencies <i>Chair: Joost Santos</i></p> <p>1:30 pm T3-D.1 Effects of network topology on vulnerability during targeted attacks <i>Guikema SD, LaRocca S</i> <i>Johns Hopkins University</i></p> <p>1:50 pm T3-D.2 Developing an inventory-based prioritization methodology for assessing inoperability and economic loss in interdependent sectors <i>Resurreccion JZ, Santos JR</i> <i>George Washington University</i></p> <p>2:10 pm T3-D.3 Water system reliability under hurricane impact considering electrical grid interdependency <i>Christian J, Rokneddin K, Ouyang M, Duenas-Osorio L</i> <i>Rice University</i></p> <p>2:30 pm T3-D.4 Broadening the discourse on infrastructure interdependence by modeling the 'ecology' of infrastructure systems <i>LaRocca S, Guikema SD, Cole J, Sanderson E</i> <i>Johns Hopkins University</i></p>	<p>1:30-3:00 PM <i>Room 7</i></p> <p>T3-E Innovative Uses of QMRA to Support Risk Management <i>Chair: Hong Yang</i></p> <p>1:30 pm T3-E.1 Risk Assessment of potential transmission of variant Creutzfeldt-Jakob Disease (vCJD) via transfusion in the United States <i>Yang H, Anderson SA</i> <i>Center for Biologics Evaluation and Research, Food and Drug Administration</i></p> <p>1:50 pm T3-E.2 Risk based microbiological criteria for Shiga toxin-producing E. coli (STEC) in ground beef <i>Sanaa M, Poisson S, Laillier R</i> <i>ANSES</i></p> <p>2:10 pm T3-E.3 A Campylobacter QMRA (Quantitative Microbiological Risk Assessment) for petting zoos <i>Evers EG, Horneman ML, Berk PA, Van Leusden FM, De Jonge R</i> <i>Natl Inst for Pub Hlth, Bilthoven, The Netherlands</i></p> <p>2:30 pm T3-E.4 Quantitative Microbial Risk Assessment of Fomites Accounting for Surface Sampling Efficiency for Viruses and Non-Spore Forming Bacteria <i>Weir MH, Shibata T, Masago Y, Cologgi DL, Rose JB</i> <i>Michigan State University</i></p>
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1:30-3:00 PM

Room 8/9

**T3-F Applied
Methodology for Trans-
portation and Other Risk
Management**

Chair: Mark Abkowitz

1:30 pm

An application of enterprise risk management in the marine transportation industry

Abkowitz MD, Camp JS

Vanderbilt University

1:50 pm

Quantifying factors & trends in casualties due to hazardous materials transportation

Locke MS

Pipeline & Hazardous Materials Safety Administration (PHMSA)

2:10 pm

Risks related to the transportation of hazardous materials: a decision-making tool for selecting a carrier

Peignier I, De Marcellis-Warin N

CIRANO (Center for Interuniversity research and Analysis of Organizations)

2:30 pm

Computer based classification of performance shaping factors for safety analysis

Yemelyanov AM, Yemelyanov AA

Georgia Southwestern State University

1:30-3:00 PM

Room 10

**T3-G Nanomaterials:
Environment, Dose-
Response, and Expert
Opinion**

Chair: J. Michael Davis

1:30 pm

Nanomaterial release from products is not related to hazard data: methods and data lacking

Froggett S, Canady RA

Center for Risk Science Innovation and Application, ILSI Research Foundation

1:50 pm

A modeling framework for assessing risk from engineered nanoparticles in the environment

Isukapalli SS, Mukherjee D, Royce SG, Georgopoulos PG

Environmental & Occupational Health Sciences Institute, New Jersey

2:10 pm

Evaluating biphasic dose-responses in nanotoxicology assays

Nascarella MA

Gradient

2:30 pm

Expert opinion and lifecycle regulation for emerging nanomaterials

Beaudrie CEH, Kandlikar M, Satterfield T, Herr Harthorn B

Institute for Resources, Environment and Sustainability, University of British Columbia, Center for Nanotechnology in Society, University of California Santa Barbara

1:30-3:00 PM

Room 11

**T3-H Risk Analysis of
Weapons of Mass
Destruction in the Supply
Chain**

Chair: Nancy McMullan

1:30 pm

Screening cargo containers for nuclear material using a layered, risk-based screening system

Dreiding RA, McLay LA

Virginia Commonwealth University

1:50 pm

Chemical supply chain incident model for human health consequence estimates

Montello BM, Shroy BC, Buchta DA, Hawkins BE, Gooding R, Kolakowski J, McGarvey D

Battelle Memorial Institute, DHS CSAC

2:10 pm

Food supply chain safety and security risk management: an innovative information integration approach

Krisben L

Futron Corporation

2:30 pm

Modeling health care surge capacity requirements during an attack on the food supply

Hartnett E, Schaffner D, Lysak K, Hedberg C, Paoli G

Risk Sciences International, Rutgers, Clarity Healthcare, University of Minnesota

1:30-3:00 PM

Room 12/13

**T3-I Symposium:
Catastrophic Climate
Change**

Chair: Seth Baum

1:30 pm

International differences in risk tolerance and implications for global climate policy

Borsuk ME, Ding P, Gerst MD, Bernstein A, Howarth RB

Dartmouth College

1:50 pm

Risk governance of nano-geoengineering

Hollenkamp L, Kuzma J

Humphrey School of Public Affairs, University of Minnesota

2:10 pm

Public understanding of Solar Radiation Management and its implications on future research

Mercer AM, Keith DW, Sharp JD

University of Calgary, Simon Fraser University

2:30 pm

Risk-risk tradeoffs in climate engineering

Wiener JB

Duke University

T3-I.1

T3-I.2

T3-I.3

T3-I.4

3:30-5:00 PM

Ballroom C1

T4-A Risk Communication and Emerging Technologies

Chair: Christy Powers

3:30 pm **T4-A.1**
Searching for determinant and change in attitude toward nanotechnology
Wang JS, Jung SC, Kim SY, Jung JY
Ajou University

3:50 pm **T4-A.2**
Do they practice what they preach? Using publication records as a predictor of scientists' attitudes toward the regulation and communication of nanoscience
Cacciatore MA, Scheufele DA, Corley EA, Shapira P, Youtie J
University of Wisconsin-Madison, Arizona State University, Georgia Institute of Technology

4:10 pm **T4-A.3**
The stability of risk and benefit perceptions: a longitudinal study assessing the perception of technological risk
Connor M, Siegrist M
USI

4:30 pm **T4-A.4**
Perceived and managed risks of biotechnologies in the medical field: a study of French experts' views
Chauvet S, Boudier FE, Le Louet H
Maastricht University

3:30-5:00 PM

Ballroom C2

T4-B Panel Discussion: Mercator-Symposium: Public Preferences and Regulatory Decision-Making - Smart Inputs for Smart Decisions?

Chair: Dirk Scheer

3:30-5:00 PM

Ballroom C3

T4-C Symposium: Improving Problem Formulation and Dose-Response Beyond Science and Decision, Part 2

Co-Chairs: Rick Becker, Julie Fitzpatrick

3:30 pm **T4-C.1**
The "straw man" system for replacing uncertainty factors with empirical distributions for traditional systemic toxicants - examples and use for value of information analysis of in vitro measurements
Hattis D, Lynch M, Greco S, Goble R
Clark University

3:50 pm **T4-C.2**
Application of a source-to-outcome model to quantitatively assess variability in dose and sensitivity in humans
Price PS, Juerg DR
The Dow Chemical Company

4:10 pm **T4-C.3**
Risk assessment of exposure to trihalomethane drinking water disinfection by-products. Use of biomonitoring equivalents and biomonitoring data from NHANES
Aylward LL, Hays SM, Kirman CR, Becker RA
Summit Toxicology, LLP

3:30-5:10 PM

Room 6

T4-D Aquatic Ecological Risk Analysis

Chair: Jerry Cura

3:30 pm **T4-D.1**
The use of a Bayesian Network for the calculation of ecological risk for Hg Contamination in the South River, VA
Ayre KK, Summers HM, Landis WJ
Western Washington University

3:50 pm **T4-D.2**
Exposure and risk relationship between selenium and mercury in fish: variations among and with species
Burger J, Gochfeld M
Rutgers State University

4:10 pm **T4-D.3**
Integrated modeling for risk and decision analysis of shoreline-dependent species threatened by sea-level rise
Kiker GA, Munoz-Carpena R, Conventino M, Chu-Agor M, Aiello-Lammens M, Akcakaya HR, Fischer R, Linkov I
University of Florida

4:30 pm **T4-D.4**
A methodology to quantify ecological risks originating from industrial accidents: application in a refinery near an aquatic ecosystem in Brazil
Duarte HO, Drogue EL
Federal University of Pernambuco (UFPE)

4:50 pm **T4-D.5**
Decision model for management of sewage plumes in a tidal environment
Calder RSD, Schmitt KA, Salazar-Garcia OE
Concordia University

3:30-5:10 PM

Room 7

T4-E Symposium: Food Safety Risk Prioritization and Decision Analysis

Chair: David Oryang

3:30 pm **T4-E.1**
Practical tools for prioritizing food safety projects and research
Oryang D
US Food and Drug Administration

3:50 pm **T4-E.2**
A multifactorial risk prioritization framework for foodborne pathogens
Fazil A, Ruzante J, Davidson V, Caswell J, Nguyen T, Cranfield J, Henson J, Anders S, Schmidt C, Farber J
Public Health Agency of Canada

4:10 pm **T4-E.3**
Overview of a food safety risk information management system
Anderson M, Beaulieu S, Jaykus L, Oryang D
RTI, International, North Carolina State University, US Food and Drug Administration

4:30 pm **T4-E.4**
An integrated decision support system for food safety risk management
Mokhtari A, Beaulieu S, Jaykus LA, Oryang D
RTI International

4:50 pm **T4-E.5**
Ranking the US public health impact of 14 major foodborne pathogens by pathogen and by foods
Hoffmann S, Batz M, Morris JG
USDA ERS, University of Florida

<p>3:30-5:00 PM <i>Room 8/9</i></p>	<p>3:30-5:10 PM <i>Room 10</i></p>	<p>3:30-5:10 PM <i>Room 11</i></p>	<p>3:30-5:10 PM <i>Room 12/13</i></p>	<p>3:30-5:00 PM <i>Room 14</i></p>
<p>T4-F Organizational Processes for Risk-Oriented Decisions <i>Chair: Myriam Merad</i></p>	<p>T4-G Nanomaterials: Exposure, Hazard, Risk and Perception <i>Chair: Margaret MacDonell, J. Michael Davis</i></p>	<p>T4-H Advanced Models and Decision Support for WMD Risk Management <i>Chair: Eric Tollar</i></p>	<p>T4-I Symposium: Global Catastrophic Risk <i>Chair: Anthony Barrett</i></p>	<p>T4-J Panel Discussion: Student and Young Professional Roundtable on Career Development <i>Co-Chairs: Franziska Boerner and Amanda Boyd</i></p>
<p>3:30 pm T4-F.1 Inter-organizational problem solving in emergency management: coordination and collaboration <i>Blust S, Lemyre L, Pinsent C, Boutette P, Corneil W, Johnson C, Lemus C</i> <i>University of Ottawa</i></p>	<p>3:30 pm T4-G.1 The curiously understudied toxicity of “nanofibers”: a risk-benefit approach <i>Philbrick M, Taylor MR</i> <i>University of California, Berkeley</i></p>	<p>3:30 pm T4-H.1 Modeling retailer and consumer behavior in a food contamination event <i>Buchta DA, Luedeke JD, Hawkins BE, Cox J, McGarvey D, Whitmire M</i> <i>Battelle Memorial Institute, DHS CSAC</i></p>	<p>3: 30 pm T4-I.1 Towards consensus on global catastrophic risk reduction objectives <i>Barrett AM, Baum SD</i> <i>ABS Consulting</i></p>	
<p>3:50 pm T4-F.2 Local risks, strategic consequences; improving risk management in UK local government <i>Smith MC, Rocks SA, Pollard SJT</i> <i>Cranfield University</i></p>	<p>3:50 pm T4-G.2 Using expert input to prioritise pathways for environmental exposure to nanomaterials - a whole environment risk assessment <i>Rocks SA, Dorey RA, Abreu R, Jefferson B</i> <i>Cranfield University</i></p>	<p>3:50 pm T4-H.2 Assessing the benefits of the public health response in the event of a chemical terrorism attack <i>Winkel D, Good K, VonNiederhausern M, Hawkins B, Cox J, McGarvey D, Whitmire M</i> <i>Battelle Memorial Institute, DHS CSAC</i></p>	<p>3: 50 pm T4-I.2 Assessment of methods for estimating existential risks: part I <i>Tonn B, Stiefel D</i> <i>University of Tennessee, Knoxville</i></p>	
<p>4:10 pm T4-F.3 Value orientatins, risk perception, and institutional trust-driven policy dilemmas in the nuclear waste arena: toward a process for forecasting and avoiding policy gridlock <i>Whitfield S, Anthony R, Lantbrum G</i> <i>National Security Programs InScope International, Institute for Defense Analysis, RAMTASC</i></p>	<p>4:10 pm T4-G.3 Identifying uncertainties within environmental risk assessments <i>Skinner DJC, Rocks SA, Drew GH, Pollard SJT</i> <i>Cranfield University</i></p>	<p>4:10 pm T4-H.3 Utility-based adversary models in risk analysis for terrorist decision making <i>Tollar E, McMillan N, Simkins J</i> <i>Battelle Memorial Institute</i></p>	<p>4:10 pm T4-I.3 Assessment of methods for estimating existential risks: part II <i>Stiefel D, Tonn B</i> <i>University of Tennessee, Knoxville</i></p>	
<p>4:30 pm T4-F.4 Decision aid process in risk management - from the conduct of the expertise process to its governance <i>Merad M, Marcel F</i> <i>INERIS</i></p>	<p>4:30 pm T4-G.4 Prioritizing nanomaterials research through value of information analysis <i>Bates ME, Chappell MA, Stevens JS, Linkov I</i> <i>US Army Corps of Engineers</i></p> <p>4:50 pm T4-G.5 A new nanocrystalline cellulose pilot plant in Alberta: environmental health and safety considerations <i>Sheremeta L</i> <i>National Institute for Nanotechnology</i></p>	<p>4:30 pm T4-H.4 Public Health Response Sensitivity Study Tool (PHRSST): a risk-based decision support tool for assessing public health response strategies <i>Dingus CA, McMillan NJ, Born A</i> <i>Battelle Memorial Institute</i></p> <p>4:50 pm T4-H.5 Developing planning scenarios and resource requirements based on quantitative risk assessment <i>Carnell R, McMillan N</i> <i>Battelle</i></p>	<p>4:30 pm T4-I.4 Partnership optimization decision support system (PODSS): improving partnership development and resource allocation in disaster recovery operations using game theory <i>Coles JB, Zhuang J</i> <i>State University at Buffalo</i></p> <p>4:50 pm T4-I.5 Communicating the importance of global catastrophic risk <i>Baum SB</i> <i>Pennsylvania State University</i></p>	

8:30-10:00 AM

Ballroom C1

W1-A Symposium: How the Public Responds to Different Disasters over Time: The Role of Perceived Risk, Emotion and Risk Communication

Chair: William Burns

8:30 am W1-A.1
Incorporating a value-focused decision model of public response into setting recovery policy following a large-scale biological disaster
Rosoff H, John R, Burns W
University of Southern California, CRE-ATE

8:50 am W1-A.2
Avoidance and adaptive behaviors following the Fukushima nuclear disaster: lessons in preparing for radiological terrorism
Sheppard B
University of Maryland

9:10 am W1-A.3
The instructional dynamic in risk messages: a comparative analysis of messages intended to enhance perceptions of self-protection
Sellnow TL, Veil SR, Wickline M, Roberts H
University of Kentucky

9:30 am W1-A.4
Public response in the U.S. to the Japanese crisis: reactions to the earthquake and tsunami versus the nuclear accident
Burns WJ
Decision Research

8:30-10:00 AM

Ballroom C2

W1-B Symposium: Analytical Approaches to Food Safety Management

Chair:

8:30 am W1-B.1
Incorporating uncertainty when evaluating risk assessment metrics: modeling *Listeria monocytogenes* contamination in ready-to-eat deli meats
Gallagher DL, Ebel E, Gallagher OD, LaBarre D, Williams M, Golden N, Kause J, Dearfield K
Virginia Tech

8:50 am W1-B.2
Use of risk assessment with risk management metrics to link public health estimates to food safety performance
Kause J, Dearfield K, Ebel ED, Golden NJ, LaBarre D, Disney T
Government

9:10 am W1-B.3
Risk management metrics in domestic food safety and international trade contexts: the changing role of quantified variability and uncertainty in different contexts
Paoli G, Ryan C, Hartnett E, Golden N.J, Dearfield K, Kause J, LaBarre D, Disney T
Risk Sciences International

9:30 am W1-B.4
Techniques for linking public health goals and microbiological criteria across multiple hazards: application to poultry, salmonella and campylobacter
Ryan C, Paoli G, Hartnett E, Golden N.J, Dearfield K, Kause J, LaBarre D, Disney T*
Risk Sciences International

8:30-10:00 AM

Ballroom C3

W1-C Risk Theory and Practice

Chair: Steve Lewis

8:30 am W1-C.1
The Pantoxin Project: a value of information framework for combining information of different types in chemical risk dose-response assessments.
Goble R, Hattis D
Clark University

8:50 am W1-C.2
Critical analysis of radiation protection regulations
Tikhomirov NP, Tikhomirova TM
Plekhanov Russia University of Economics

9:10 am W1-C.3
Finally, a SCIENTIFIC definition of adverse effect
Belzer RB
Regulatory Checkbook

9:30 am W1-C.4
None of the occupational exposure limits reveal risk information: aquantitative ‘nudge’ could save lives
Finkel AM, Altemose B, Hattis D
University of Pennsylvania Law School

8:30-10:00 AM

Room 6

W1-D Methods to Inform Environmental Management

Chair: K. Frantzen

8:30 am W1-D.1
Assessing risk of invasive species under severe uncertainty: a dominance-based approach
Yemshanov D, Koch F, Lyons B, Ducey M, Koehler K
Natural Resources Canada, Canadian Forest Service, North Carolina State University, University of New Hampshire, Canadian Food Inspection Agency

8:50 am W1-D.2
Advancements in integrated wildfire risk assessment
Thompson MP, Calkin DE
US Forest Service

9:10 am W1-D.3
Challenges of managing small suburban natural areas: Public beliefs, attitudes and behaviors regarding ecological effects
Johnson BB, Horowitz L, Ebrencfeld J
Decision Research

9:30 am W1-D.4
An ecological, multidisciplinary approach to nuclear facilities: protecting society, human health and the environment.
Burger J, Gochfeld M, Clarke J, Powers C, Kosson D
Rutgers State University, CRESP, Vanderbilt

8:30-10:00 AM

Room 8/9

W1-F Symposium: Risk Assessment for Acquisition and Assets Management

Chair: Igor Linkov

8:30 am **W1-F.1**
Identification, prioritization, and management of risks for energy systems acquisition and portfolio of assets

*Hamilton M, Lambert J, Linkov I
University of Virginia*

8:50 am **W1-F.2**
Best practices for risk and trade space analysis for acquisition management: overview of the military operations research society workshop

*Scriven J, Linkov I
US Army TRADOC, Engineer Research and Development Center*

9:10 am **W1-F.3**
Review of risk analysis use in Department of Defense (DoD) acquisition

*Pabon NA, Collier Z, Linkov I
US Army Corps Engineer Research and Development Center*

9:30 am **W1-F.4**
Portfolio optimization for asset management: a USACE case study

*Valverde LJ, Convertino M, Dokukin D, Keisler J, Linkov I
US Army Engineer Research and Development Center and University of Massachusetts*

8:30-10:00 AM

Room 10

W1-G Uncertainty, Bears, Dioxin and Well Water

Chair:

8:30 am **W1-G.1**
Carnivores as a hazard: the role of risk perception in predicting public acceptance

*Zajac RM, Bruskotter JT, Wilson RS, Prange S
The Ohio State University, Ohio Division of Wildlife*

8:50 am **W1-G.2**
Exploring the use of evaluative labels to increase the saliency of uncertainty information

*Dieckmann NF, Gregory R, Peters E, Tusler M
Decision Research, Ohio State University*

9:10 am **W1-G.3**
Do maps promote water testing among residents with private wells? The influence of map features and perceived proximity to mapped hazards on risk beliefs, uncertainty, and testing intentions.

*Severtson DJ
UW-Madison*

9:30 am **W1-G.4**
Misconceptions in community members' mental models of dioxin-like compounds following an exposure assessment study

*Zikmund-Fisher BJ, Diebol JK, Ross PT, Turkelson AE, Weber I, Franzblau AD, Parker EA
University of Michigan, University of Iowa*

8:30-10:00 AM

Room 11

W1-H Symposium: Managing Risks from Hurricanes in Coastal Areas

Chair: Henry Willis

8:30 am **W1-H.1**
Risk-based regional hurricane evacuation planning

*Apivatanaagul P, Davidson RA, Nozick LK, Wachtendorf T
University of Delaware, Cornell University*

8:50 am **W1-H.2**
Expert perspectives for improving USACE flood risk management and stakeholder engagement

*Wood MD, Linkov I, Bridges T
Carnegie Mellon University, US Army Corps of Engineers, Engineer Research and Development Center - Environmental Laboratory*

9:10 am **W1-H.3**
Assessing long-term flood risks to coastal Louisiana under deep uncertainty

*Fischbach JR, Ortiz DS, Johnson DR, Burger NE
RAND Corporation*

9:30 am **W1-H.4**
Adapting to future hurricane risk in New Orleans under climate change uncertainty

*Willis HH, Groves D, Fischbach J, Johnson DJ, Andrews L
RAND Corporation*

8:30-10:00 AM

Room 12/13

W1-I Preference Elicitation and Benefits Assessments, Part 1

Chair: Sandra Hoffman

8:30 am **W1-I.1**
Preferences related to urban sustainability under risk, uncertainty, and dynamics: a combined elicitation and modeling approach

*Gray GM, Francis RA, Carruthers JJ, Malczynski LA, Lee RC
George Washington University, Sandia National Laboratories, Neptune and Company, Inc.*

8:50 am **W1-I.2**

Intrahousehold bargaining and stated-choice experiments: mothers' fathers', and couples' willingness-to-pay to protect their children from environmental neurotoxins

Hoffmann S, Krupnick A, Adamowicz V, Boström A

USDA Economic Research Service, Resources for the Future, University of Alberta, University of Washington

9:10 am **W1-I.3**
Preferences for and perception of road safety

*Andersson H
Toulouse School of Economics*

9:30 am **W1-I.4**

Quantifying health impacts in life-years: a bridge between two methods

*Brand KB, Stieb D
University of Ottawa, Health-Canada*

<p>10:30 AM-Noon <i>Ballroom C1</i> W2-A Communicating Food Contamination <i>Chair: Ashley Mercer</i></p>	<p>10:30 AM-Noon <i>Ballroom C2</i> W2-B Poster Platform: The Development of High Throughput Exposure Techniques for Prioritizing Chemical Risks <i>Chair: Jade Mitchell-Blackwood</i></p>	<p>W2-B.5 High-throughput exposure potential prioritization for Toxic-Cast chemicals <i>Wambaugh JF</i> <i>US Environmental Protection Agency</i></p>	<p>10:30 AM-Noon <i>Ballroom C3</i> W2-C Low-Dose Dose-Response <i>Chair: Rick Reiss</i></p>	<p>10:30 AM-Noon <i>Room 6</i> W2-D Risk Analysis of Transportation Networks and Assets <i>Chair: Shital Thekdi</i></p>
<p>10:30 am W2-A.1 Egg recall of 2010: high awareness did not match behavioral impact <i>Hallman WK, Cuite CL</i> <i>Rutgers, The State University of New Jersey</i></p>	<p>W2-B.1 Characterization of uncertainties associated with screening level exposure-based prioritization of toxic chemicals using PROTEGE <i>Isukapalli SS, Brinkerhoff CJ, Georgopoulos PG</i> <i>Environmental & Occupational Health Sciences Institute</i></p>	<p>W2-B.6 Using Multicriteria Decision Analysis (MCDA) to prioritize the exposure potential of existing and emerging chemicals <i>Wang D, Collier Z, Mitchell-Blackwood J, Keisler J, Linkov I</i> <i>DW-Carnegie Mellon University, ZC-US Army Engineer Research and Development Center, JMB-USEPA, JK-University of Massachusetts, IL-US Army Engineer Research and Development Center</i></p>	<p>10:30 am W2-C.1 Pesticide residues on food: a mountain or a mole hill <i>Reiss R, Johnston J, DeSesso J, Tucker K</i> <i>Exponent</i></p>	<p>10:30 am W2-D.1 Risk models and negotiation analysis for land development adjacent to infrastructure systems <i>Thekdi SA, Lambert JH</i> <i>University of Virginia</i></p>
<p>10:50 am W2-A.2 Aflatoxin and population attributable liver cancer risk in high exposure prevalent areas- a systematic review <i>Liu Y, Wu F</i> <i>University of Pittsburgh</i></p>	<p>W2-B.2 Challenging exposure prioritization approaches <i>Mitchell-Blackwood J, Vallero DA, Eggeby P</i> <i>US Environmental Protection Agency</i></p>	<p>W2-B.3 From SHEDS to SHEDS-lite: development of an efficient human exposure model <i>Ozkaynak H, Eggeby P, Mitchell-Blackwood J</i> <i>US Environmental Protection Agency</i></p>	<p>10:50 am W2-C.2 EPA's endocrine disruptor screening program: lessons from an inert substance consortium <i>Gulledge B</i> <i>American Chemistry Council</i></p>	<p>10:50 am W2-D.2 Climate change impacts on freight transportation infrastructure - adaptation strategies and challenges <i>Camp JS, Abkowitz MD, Hornberger GM</i> <i>Vanderbilt University</i></p>
<p>11:10 am W2-A.3 Mental models of food recalls <i>Kaptan G, Fischhoff B</i> <i>Carnegie Mellon University</i></p>	<p>W2-B.4 Introduction to chemical safety for sustainability: exposure-based prioritization <i>Vallero DA, Eggeby P</i> <i>US Environmental Protection Agency</i></p>		<p>11:10 am W2-C.3 Application of systems biology approach to identify the controlling mechanisms for J-shaped dose response curve <i>Zhao Y, Wu Y</i> <i>University</i></p>	<p>11:10 am W2-D.3 Modeling the socio-economic risks of bridge failures <i>Andrijic E, Haines YY</i> <i>University of Virginia</i></p>
<p>11:30 am W2-A.4 Reassuring the public after a contamination incident: public perceptions of microbiological testing and reconditioned food products <i>Cuite CL, McWilliams RM, Hallman WK</i> <i>Rutgers, The State University of New Jersey</i></p>			<p>11:30 am W2-C.4 Using dose-response curves to create win-win environmental legal policies <i>Rowell KA</i> <i>University of Illinois College of Law</i></p>	<p>11:30 am W2-D.4 A systemic approach to bridge sensing and monitoring systems <i>Guo Z, Haines YY</i> <i>University of Virginia</i></p>

10:30 AM-Noon <i>Room 7</i>	10:30 AM-Noon <i>Room 8/9</i>	10:30 AM-Noon <i>Room 10</i>	10:30 AM-Noon <i>Room 11</i>	10:30 AM-Noon <i>Room 12/13</i>
W2-E Symposium: Rapid Risk Evaluation: Analytic Tools to Support Federal Response to Environmental and Food Safety Incidents <i>Chair: Janell Kause</i>	W2-F Innovative Mathematical and Computational Methods for Risk Modeling <i>Chair: Mark Borsuk</i>	W2-G Epidemiological Dose Response Data <i>Chair: Bob Park</i>	W2-H Symposium: Risk Communication in the US Hurricane Forecast and Warning System <i>Chair: Bob O'Connor</i>	W2-I Preference Elicitation and Benefits Assessments, Part 2 <i>Chair: David Calkin</i>
10:30 am W2-E.1 Risk analysis during food safety emergencies <i>Callahan J, Dennis S</i> <i>Food and Drug Administration, Center for Food Safety and Applied Nutrition</i>	10:30 am W2-F.1 Optimizing and satisficing in the management of risk <i>Ben-Haim Y</i> <i>Technion - Israel Institute of Technology</i>	10:30 am W2-G.1 Health risk assessment of exposures associated with Nigerian oil fields <i>Vorbees D, Strauss H, Heiger-Bernays W, Gopinathan B, Oruchin E, Stirrett-Wood G, Ighara J, Covell W, Chien J, Dong Z</i> <i>Boston University School of Public Health</i>	10:30 am W2-H.1 Inundation or ignorance? Perception and communication of storm surge risk <i>Lazo JK, Morrow BH, Rhome JR, Feyen JC</i> <i>National Center for Atmospheric Research</i>	10:30 am W2-I.1 Modeling skip-row corn risk using experimental trial data: production, insurance, and economic implications <i>Woodard JD, Pawlista AD, Schmitkey GD, Burgener PA, Ward KA</i> <i>Cornell University, Texas A&M University, University of Nebraska, University of Illinois, Windsor Strategy Partners</i>
10:50 am W2-E.2 Rapid risk evaluation: an important tool for addressing food contamination incidents and emerging food safety concerns <i>Domesle ARM, Bennett P, Dearfield K, Kause J</i> <i>Food Safety and Inspection Service, US Department of Agriculture</i>	10:50 am W2-F.2 Facilitating pareto-optimal coordination by subsidies in deterministic and stochastic payoff settings <i>Gong M, Heal G, Krantz D, Kunreuther H, Weber E</i> <i>Columbia University</i>	10:50 am W2-G.2 Sources of variability in biomonitoring data: temporal variation in spot sample concentrations <i>Hays S, Kirman C, Aylward L</i> <i>Summit Toxicology</i>	10:50 am W2-H.2 Communication successes and challenges of the hurricane warning system: a case study <i>Demuth JL, Morss RE, Morrow BH, Lazo JL</i> <i>National Center for Atmospheric Research</i>	10:50 am W2-I.2 Risk preferences and probability weighting in strategic wildfire decision-making: a choice experiment of US wildfire managers <i>Calkin DE, Wibbenmeyer MJ, Hand MS, Thompson MP, Venn TJ</i> <i>US Forest Service Rocky Mountain Research Station, The University of Montana</i>
11:10 am W2-E.3 Rapid risk evaluations: applications, challenges and limitations <i>Kadry AM, Woodall GM, Reid J</i> <i>US Environmental Protection Agency</i>	11:10 am W2-F.3 Modeling operational risk using a Bayesian approach to EVT <i>Rivera Mancina ME</i> <i>McGill University</i>	11:10 am W2-G.3 Microwave popcorn workers: pulmonary impairment and preliminary risk assessment <i>Park RM, Gilbert SJ, Sofge CW</i> <i>National Institute for Occupational Safety and Health</i>	11:10 am W2-H.3 Studying and improving response to tropical cyclone threats: lessons from the virtual hurricane lab <i>Meyer RJ</i> <i>University of Pennsylvania</i>	11:10 am W2-I.3 The economics of environmental reclamation for shale gas development in Pennsylvania <i>Mitchell A, Casman E</i> <i>Carnegie Mellon University</i>
	11:30 am W2-F.4 Agent-based modelling of the linked energy, economic, and climate system for scenario generation and robust decision-making <i>Gerst MD, Wang P, Roventini A, Dosi G, Howarth RB, Borsuk ME</i> <i>Dartmouth College</i>	11:30 am W2-G.4 Use of worker epidemiological data to assess inhalation risk from 2-Mercaptobenzothiazole <i>Weinrich AJ, Jinot J</i> <i>US Environmental Protection Agency National Center for Environmental Assessment</i>	11:30 am W2-H.4 Warning decisions in extreme weather events: forecasters' perceptions and perspectives on hurricane forecasts, warnings, decisions and risks <i>Bostrom A, Hudson R, Lazo J, Morss R, DeMuth J</i> <i>University of Washington</i>	11:30 am W2-I.4 Stakeholder engagement in practice - the experience of the National Tree Safety Group in the development of a nationally recognised approach to tree safety management in the UK <i>Watt JM, Fay N</i> <i>Middlesex University, UK, Treework Environmental Practice, UK</i>

1:30-3:00 PM

Ballroom C1

W3-A Communicating Risks in Times of Duress

Chair: Andrew Binder

- 1:30 pm W3-A.1** Relationship between judgments of health risk and satisfaction with hazard and exposure communications
Diebol JK, Zikmund-Fisher BJ, Ross PT, Turkelson A, Weber I, Franzblau A, Parker E
University of Michigan, The University of Iowa
- 1:50 pm W3-A.2** A strategic risk communication process for biosolids professionals: advancing the field
Eggers SL, Thorne SL, Sousa KAT, Butte G*
Decision Partners
- 2:10 pm W3-A.3** Social and psychological elements of hurricane risk perception
Trumbo CW, Peek L, Lueck M, Marlatt HM, McNoldy B, Grunfest E
Colorado State University
- 2:30 pm W3-A.4** Same test, same result - same information? A study of physician and lay understanding of medical tests and risk
Austin LC
Copenhagen Business School

1:30-3:00 PM

Ballroom C2

W3-B Foodborne Exposures

Chair: Anthony Fristachi

- 1:30 pm W3-B.1** Exposure assessment for caffeine in the United States
DiNovi M, Srinivasan J, Srinivasan US
US Food and Drug Administration
- 1:50 pm W3-B.2** Foodborne contamination consequence modeling
Luedeke JD, Buchta DB, Truong C, Hawkins BE, Cox J, McGarvey D, Whitmire M
Battelle Memorial Institute, DHS CSAC
- 2:10 pm W3-B.4** Estimation of human infection risks for foodborne viruses due to consumption of fresh produce, pork and mussels in Europe
Bouwknegt M, Verhaelen K, Rutjes SA, De Roda Husman AM
National Institute for Public Health and The Environment

1:30-3:00 PM

Ballroom C3

W3-C Symposium: Graphic Depictions of Toxicological Data

Co-Chairs: George Woodall, A Boyle

- 1:30 pm W3-C.1** Exposure response array project and summary of an October workshop
Woodall GM
US Environmental Protection Agency, NCEA
- 1:50 pm W3-C.2** Software for displaying toxicological data at NTP: the Exposure Response Array and Forest Plot Viewer programs
Rooney AA, Boyles AL, Harris SF, Thayer KA
Office of Health Assessment and Translation, SRA International, Inc.
- 2:10 pm W3-C.3** Development of ATSDR's levels of significant exposure tables and figures
Abadin HG
ATSDR
- 2:30 pm W3-C.4** Weight of evidence evaluation for adverse health effects of several pesticides at environmentally-relevant concentrations
von Stackelberg KE
E Risk Sciences, LLP

1:30-3:00 PM

Room 6

W3-D Ecological Risk Assessment

Chair: Greg McDermott

- 1:30 pm W3-D.1** Risk screening assessments at Los Alamos National Laboratory (Part 2. Ecological)
Fristachi A, Mirenda R
Environmental Risk Resources, Los Alamos National Laboratory
- 1:50 pm W3-D.2** Can soil bioassays be used to establish or modify site-specific cleanup goals?
Swanson WL, Rytty RT
Neptune and Company, Inc.
- 2:10 pm W3-D.3** Water pollution risk associated with natural gas extraction from the Marcellus shale
Rozell DJ, Reaven S
Stony Brook University
- 2:30 pm W3-D.4** Differential body burdens of various compounds in co-occurring bivalves
Cura J, Occhialini J, Vorhees D
Woods Hole Group, Alpha Analytical, The Science Collaborative, North Shore

1:30-3:00 PM

Room 7

W3-E Symposium: Innovative Means of Data Collection to Support a Quantitative Risk Assessment

Chair: Marie Cornu

- 1:30 pm W3-E.1** Site visits: a novel means of filling-in the data gaps
Fanaselle WL, Dennis S, Oryang D, Pouillot R, Van Doren J
Food and Drug Administration, Center for Food Safety and Nutrition
- 1:50 pm W3-E.2** Geospatial risk assessment of contamination of agricultural produce by enteric pathogens
Anyamba A, Smith M, Oryang D, Fanaselle W
NASA Goddard Space Flight Center
- 2:10 pm W3-E.3** Collecting data to assess food exposure: comparison of a 4-year project (L. monocytogenes in smoked salmon) versus a real-time assessment after Fukushima Accident (radiological hazards)
Simon-Cornu M, Beaufort A, Gonze MA, Metivier JM, Mourlon C, Parache V
ANSES, France, Institut de Radioprotection et de Surete Nucleaire (IRSN), France
- 2:30 pm W3-E.4** Global burden of disease caused by foodborne toxins: use of biomarkers vs. dietary recall and market samples
Wu F, Liu Y, Khlangwiset P
University of Pittsburgh

1:30-3:00 PM

Room 8/9

W3-F Symposium: Making the World Safer - Perspectives from Different Industries and Countries

Sponsored by DARSG

Chair: Ian Hall

1:30 pm W3-F.1
Securing improved risk governance for water utilities
Gormley AM, Pollard SJT, Mauelshagen C
Cranfield University

1:50 pm W3-F.2
Changing perceptions of risk appetite through the use of simulations and scenarios
Hall IS
Open University

2:10 pm W3-F.3
Using the portfolio decision quality framework to guide risk assessment
Keisler JM, Linkov I
University of Massachusetts Boston

2:30 pm W3-F.4
Aligning risk with reality - a case study from the UK Financial Services Industry
Sides W, Hall IS
LTSB Asset Finance

1:30-3:00 PM

Room 10

W3-G The Dose Response Wave

Chair: Dwaipayan Mukherjee

1:30 pm W3-G.1
Updated safety assessment of aluminum exposures from vaccination in infants using pharmacokinetic modeling
Walderhaug MO, Mitkus R, Hess M, King D
FDA CBER

1:50 pm W3-G.2
Effects of atrazine dose distribution on pharmacokinetics and pharmacodynamics in the rat
Kim D, Pastoor T, Yi KD, Campbell JL, Anersen ME, Clewell HJ, Handa RH, Breckenridge CB
Syngenta Crop Protection, LLC, The Hamner Institutes, University of Arizona

2:10 pm W3-G.3
Physiologically based toxicokinetic modeling of zearalenone and zearanol: estimating dietary exposure and toxicity for individuals at risk
Mukherjee D, Bandera E, Buckley B, Isukapalli SS
Environmental & Occupational Health Sciences Institute

2:30 pm W3-G.4
Polycyclic aromatic hydrocarbons analysis using chemical mass balance model
Julius C, Liu C, Luke N
CDM

1:30-3:00 PM

Room 11

W3-H Symposium: Game Theory and Homeland Security

Chair: Jun Zhuang, Vicki M Bier

1:30 pm W3-H.1
Defender-attacker model for computer network security
Ertem M, Bier VM
University of Wisconsin-Madison

1:50 pm W3-H.2
Adversary modeling and defensive decision analysis for robust terrorism risk management
Barrett AM
ABS Consulting

2:10 pm W3-H.3
Attacker-defender games in cyber-physical networks
He F, Zhuang J, Rao NSV
University at Buffalo, SUNY, Oak Ridge National Laboratory

2:30 pm W3-H.4
Cost of equity in defensive resource allocations in the face of a possibly non-strategic attacker
Shan X, Zhuang J
University at Buffalo, The State University of New York

1:30-3:00 PM

Room 12/13

W3-I Symposium: Benefits, Co-Benefits and Uncertainties of Air Quality Improvements

Chair: Elizabeth Gilmore

1:30 pm W3-I.1
Reassessing the evidence on health benefits of cleaning air
Cox LA
Cox Associates and University of Colorado

1:50 pm W3-I.2
Health and climate benefits of cook-stove replacement options
Grieshop AP, Marshall JD, Kandlikar M
North Carolina State University, University of Minnesota, University of British Columbia

2:10 pm W3-I.3
Public health co-benefits from GHG mitigation options at a developing country
Pica APT, Cifuentes LAC, Borchers NBA, Cabrera CCC, Rodriguez MRB
Pontificia Universidad Catolica de Chile

2:30 pm W3-I.4
Assessment of inter-individual, geographic, and seasonal variability in estimated human exposure to PM2.5
Jiao W, Frey HC
North Carolina State University

<p>3:30-4:30 PM <i>Ballroom C1</i></p>	<p>3:30-5:00 PM <i>Ballroom C2</i></p>	<p>3:30-5:10 PM <i>Ballroom C3</i></p>	<p>3:30-5:00 PM <i>Room 6</i></p>	<p>3:30-5:10 PM <i>Room 7</i></p>
<p>W4-A Communicating Risks, Health and Well-Being <i>Chair: Amanda Boyd</i></p>	<p>W4-B Risk Assessment of Pharmaceuticals in the Environment <i>Chair: Matteo Conventino</i></p>	<p>W4-C Symposium: Fulfilling the Potential of EPA's Integrated Risk Information System (IRIS) Program <i>Chair: Becki Clark</i></p>	<p>W4-D Reliability Analysis and Modeling for Infrastructure Systems <i>Chair: Margaret MacDonell</i></p>	<p>W4-E Bio-Risk: Agriculture and Beyond <i>Chair: Mark Powell</i></p>
<p>3:30 pm W4-A.1 H1N1 - Credibility of traditional health information sources and Web 2.0 information in Alberta <i>Boerner FU, Jardine C, Driedger M</i> <i>University of Alberta, University of Manitoba</i></p>	<p>3:30 pm W4-B.1 Pharmaceuticals in the environments: water occurrence assessment <i>Conerly O, Hallberg G, Tomasik T</i> <i>US Environmental Protection Agency, The Cadmus Group</i></p>	<p>3:30 pm W4-C.1 New initiatives for EPA's Integrated Risk Information System (IRIS) program <i>Clark B, Kadry AM, Flowers L, Cogliano V</i> <i>US Environmental Protection Agency</i></p>	<p>3:30 pm W4-D.1 Quantifying the hurricane risk to offshore wind turbines <i>Rose S, Jaramillo P, Small M, Grossmann I, Apt J</i> <i>Carnegie Mellon University</i></p>	<p>3:30 pm W4-E.1 A systems approach to retrospective regulatory review: a case study of agricultural regulation in Washington <i>Abbott LC, Schaub JD</i> <i>US Department of Agriculture</i></p>
<p>3:50 pm W4-A.2 The influence of risk communication formats on benefit perception of medical treatments <i>Keller C, Siegrist M</i> <i>ETH Zurich</i></p>	<p>3:50 pm W4-B.2 Pharmaceuticals in the environment: health effects screening <i>Conerly O, Gebhart AM, Fitzpatrick S, Bloom R</i> <i>US Environmental Protection Agency, Toxservices, US Food and Drug Administration</i></p>	<p>3:50 pm W4-C.2 ATSDR approaches for increasing transparency, speed and stakeholder involvement in chemical risk assessments <i>Fowler BA, Abadin H, Chou S, Demchuk E, Tie Y, Ruiz P, Mumtaz M, Wheeler J</i> <i>Agency for Toxic Substances and Disease Registry (ATSDR)</i></p>	<p>3:50 pm W4-D.2 Recent advances in probability-bounds theory applied to aerospace <i>Balch MS</i> <i>Applied Biomathematics</i></p>	<p>3:50 pm W4-E.2 Examining the potential futures of plant targeted genetic modification <i>Kokotovich AE, Kuzma J</i> <i>University of Minnesota</i></p>
<p>4:10 pm W4-A.4 Which pictorial warning labels on cigarette packaging work best? Experimental evidence from smokers and youth in Mexico and the US <i>Thrasher JF, Hammond D, Reid J, Drieszen P, Boudreau C</i> <i>University of South Carolina</i></p>	<p>4:10 pm W4-B.3 Decision-driven risk assessment of the pharmaceutical supply chain <i>Conventino M, Collier ZA, Valverde JL, Tourki Y, Barber M, Keisler JM, Linkov I</i> <i>University of Florida, USACE ERDC, Ecole des Mines Nancy, MIT, University of Massachusetts Boston</i></p>	<p>4:10 pm W4-C.3 Corrective lenses for IRIS <i>Steinzor R, Shudtz M</i> <i>University of Maryland School of Law and the Center for Progressive Reform</i></p>	<p>4:10 pm W4-D.3 Advancing probabilistic risk analysis by enhanced treatment of common cause failures: a mechanistic perspective <i>Mohaghegh ZM, Modarres MM</i> <i>University of Maryland</i></p>	<p>4:10 pm W4-E.3 Risk assessment on animal welfare performed at the European Food Safety Authority in the EU <i>Serratos JS, Ribo OR</i> <i>European Food Safety Authority</i></p>
<p>4:30 pm W4-B.4 Comparability of toxicological evaluation frameworks for veterinary and human pharmaceuticals and environmental chemicals for four federal programs <i>Nachman K, Fain K, Shah S, Fox M</i> <i>Johns Hopkins University</i></p>	<p>4:30 pm W4-C.4 Recommendations for Retooling IRIS <i>Becker RA, Moran E, Fensterbeim R, Pottinger LH</i> <i>American Chemistry Council</i></p>	<p>4:30 pm W4-C.5 Natural Resources Defense Council (NRDC) perspective on transparency, speed and stakeholders' involvement in EPA's chemical risk assessment <i>Sass J</i> <i>Natural Resources Defense Council (NRDC)</i></p>	<p>4:30 pm W4-D.4 Quantifying the interdependence between bridge capacity and load <i>Hwang S, Haimes YY</i> <i>University of Virginia</i></p>	<p>4:30 pm W4-E.4 How do you model a "negligible" probability under the WTO Sanitary and Phytosanitary Agreement? <i>Powell M</i> <i>US Department of Agriculture</i></p>
				<p>4:50 pm W4-E.5 How to deal with gene-biohazard interaction? <i>Eisinger F</i> <i>IPC</i></p>

3:30-5:00 PM

Room 8/9

W4-F Environmental Risk Management Decisions

Chair: Robert Lee

3:30 pm **W4-F.1**

Natural resource damage assessment, risk assessment, and decision analysis: Why can't we all be friends?
Lee RC, Ryti R, Fitzgerald M, Black P Neptune and Company, Inc.

3:50 pm **W4-F.2**

Evaluation of different data sources used to populate environmental strategic risk appraisal framework
Dagonneau JM, Prpich G, Rocks SA, Pol-lard SJT Cranfield University

4:10 pm **W4-F.3**

Reducing the uncertainty in water quality assessment of corn verses switchgrass ethanol production
Biksey T, Wu F, Kaltenbach M EHS Support, Inc., University of Pitts-burgh, University of Notre Dame

3:30-5:00 PM

Room 10

W4-G Panel Discussion: SRA Specialty Groups: What's Missing

Chair:

Panelists:

Trump BD, Hartz RT, Linkov I Carnegie Mellon University, University of Pittsburgh, US Army Engineer Research and Development Center

3:30-5:00 PM

Room 11

W4-H Risk Analysis Approaches for Cybersecurity and Critical Infrastructure

Chair: Thad Odderstol

3:30 pm **W4-H.1**

Identifying and managing national-level cybersecurity risk
Odderstol TW Department of Homeland Security, Na-tional Cyber Security Division

3:50 pm **W4-H.2**

Cyber-security risk assessment: chal-lenges and solutions
Panjwani S, Baecher G University of Maryland

4:10 pm **W4-H.3**

Towards more risk- and perfor-mance-based US government stan-dards for protecting buildings from vehicle bomb attacks
Heatwole NT, Florig HK University of Southern California, Univer-sity of Florida, Carnegie Mellon University

4:30 pm **W4-H.4**

Game theoretical risk management
Sneekenes E Gjonvik University College, Norway

3:30-5:10 PM

Room 12/13

W4-I Symposium: Quantifying and Communicating the US Domestic Benefits of GHG Emissions Reductions

Chair: Marus Sarofim

3:30 pm **W4-I.1**

Modeling US agricultural response under climate change
Beach RH, McCarl BA, Obrel SB, DeAngelo BJ, Ross MT RTI International

3:50 pm **W4-I.2**

Quantifying and communicating benefits and risks of GHG emission scenarios
DeAngelo BJ, Gilmore EA, Sarofim MC, Waldboff ST, Martinich J, Cardamone K, Obrel S, Ragnauth S, Birnbaum R US Environmental Protection Agency

4:10 pm **W4-I.3**

Quantifying and valuing climate change impacts on coral reefs in the US
Martinich J, Lane D, Buddemeier R, Ready R, Cardamone K, Carney K US Environmental Protection Agency

4:30 pm **W4-I.4**

The impact of climate change on mortality risk and impacts attribut-able to extreme heat and cold in ma-jor U.S. metropolitan areas
Mills D, Deck L Stratus Consulting Inc.

4:50 pm

W4-I.5

Assessing the economic impact of climate change induced sea level rise and storm surge in the US
Neumann JE, Martinich J, Hudgens D, Emanuel K, Ravela S, Kirshen P, Bosma K, Ludwig L, Herter J Industrial Economics, Incorporated; Climate Change Division, USEPA, WindRisk-Tech, Battelle Memorial Institute, Woods Hole Group, Independent Consultant