

## AGENDA

### **Eighteenth Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling**

**June 24-25, 2014**

#### **Conference Chairs:**

Zafer Boybeyi (George Mason University, Fairfax, VA)  
Joseph Chang (Homeland Security Studies and Analysis Institute, Falls Church, VA)

All Sessions to be held at Lecture Hall, Room #1  
George Mason University, Fairfax, VA, USA

#### **THEMES:**

- Improved understanding of atmospheric transport and dispersion processes
- Support of homeland security and defense requirements
- Information sharing across different sectors

#### **DAY 1—TUESDAY, JUNE 24, 2014**

**(7:30 – All DAY) REGISTRATION**

**(7:30 – 9:30) CONTINENTAL BREAKFAST**

**(8:00 – 8:10) INTRODUCTIONS**

**(8:10 – 8:20) WELCOMING REMARKS (Peggy Agouris, Dean, College of Science)**

<b>Session 1—Local Scale Studies and Source Estimation</b>
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Chair—Ron Meris, Defense Threat Reduction Agency
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**(8:20-8:40) Two Dimensional, Local Pollutant Transport by Cask Depressurization in the Presence of Wind**

Christopher Clutz and Ruth Weiner  
Sandia National Laboratories

**(8:40-9:00) Atmospheric Source Estimation With Uncertainty Quantification For Urban Scales**

Donald D. Lucas, Akshay Gowardhan, Gardar Johansson, Philip Cameron-Smith, and Ron Baskett  
Lawrence Livermore National Laboratory

**(9:00-9:20) The Use of Background Error Covariance Matrices to Improve Gradient Descent Performance within the Variational Iterative Refinement Source Term Estimation (STE) Algorithm (VIRSA)**

Luna M. Rodriguez, Paul E. Bieringer, Andrew J. Annunzio, George Bieberbach, Francois Vandenberghe, Jonathan Hurst, and Rick Fry

National Center for Atmospheric Research

**(9:20-9:40) Stand-off Detection Analysis of Chemical Facility Attack**

John Boyd, John A Magerko Jr., Tom Mazzola, Matt Niedzielski, W. R. (Russ) Seebaugh, and Ronald G. Meris  
TASC

**(9:40-10:00) Two-component Vector Wind Fields from Scanning Aerosol Lidars**

Shane D. Mayor, Pierre Dérian, Chris Mauzey, Scott Higdon, and Tom Chyba  
California State University Chico

**(10:00-10:30) COFFEE BREAK**

**Session 2-CFD, Wind Tunnel, and Boundary Layer Studies**

Chair: Julie Pullen, Stevens Institute of Technology

**(10:30-10:50) Evaluation of CFD RANS Predictions for a Building Complex Using Wind Tunnel Modeling**

Alexy Kolesnikov and Ron Petersen  
CPP, Inc.

**(10:50-11:10) Analog CFD: on the Continuing Usefulness of Wind Tunnel Simulations**

Anthony Bova, Alexy Kolesnikov, and Ron Petersen  
CPP, Inc.

**(11:10-11:30) The National Weather Service's Ceilometer Planetary Boundary Layer Project**

Michael Hicks, D. Atkinson, B. Demoz, K. Vermeesch, and R. Delgado  
National Weather Service

**(11:30-11:50) Atmospheric Transport & Dispersion Studies in the Complex Urban-coastal Environment of New York City**

Talmor Meir  
Stevens Institute of Technology

**(11:50-12:10) Specifying Atmospheric Stability-Why, Where, and How?**

Bruce Hicks, Steve Chiswell, Allen Weber, and Chuck Hunter  
Metcorps, Norris, TN

**(12:10-1:30) LUNCH BREAK**

**Session 3-High-Resolution Modeling and Model Selection for Emergency Response**

Chair: Steve Herring, Defense Science and Technology Laboratory, UK

**(1:30-1:50) A Sub-km-grid Mini-ensemble for Representing Meso-gamma Hazard-prediction Uncertainty in Complex Terrain**

Eric Wendoloski, David Stauffer, and Glenn Hunter

The Pennsylvania State University

**(1:50-2:10) COST Action ES1006: Local-scale Airborne Hazard Modelling for Emergency Response**

Steven Herring

Dstl, Porton Down, Salisbury, UK

**(2:10-2:30) Impact of Nonlinear Waves and Rotor Circulations on Atmospheric Transport and Dispersion**

Astrid Suarez and David R. Stauffer

The Pennsylvania State University

**(2:30-2:50) An Approach to Model Selection and Calibration for Bayesian Inverse Problems**

Paul B. Westoby and Andrew R. Webb

Dstl, Porton Down, Salisbury, UK

**(2:50-3:10) COFFEE BREAK**

**Session 4-CBRN Defense and Model Development**

Chair: Andrew Annunzio, National Center for Atmospheric Research

**(3:10-3:30) Building a Flexible Indoor-Outdoor Urban CB Incident Response Capability**

Steven Herring and James England

Dstl, Porton Down, Salisbury, UK

**(3:30-3:50) A Case Study of Advanced AT&D Modelling Contribution to CBRN-E Emergency Preparedness and Response in a Built Environment**

Patrick Armand, Christophe Duchenne, and Yasmine Benamrane

French Alternative Energies and Atomic Energy Commission

**(3:50-4:10) Evaluation of Atmospheric Dispersion Models' Capabilities to Simulate Radiological Dispersion Device (RDD) Events in an Urban Environment**

Steven Hanna, Stefano Galmarini, Miguel Hernandez, and Thomas Mazzola

Hanna Consultants

**(4:10-4:30) An Ensemble Based Methodology for Testing and Evaluating Sensor Networks for Chemical and Biological Field Programs**

Andrew J. Annunzio, Paul E. Bieringer, John Hannan, Ryan Cabell, George Bieberbach, and Rick Fry  
National Center for Atmospheric Research

**(4:30-4:50) Effects of UV Exposure and Spore Cluster Size on Deposition and Inhalation Hazards of Bacillus Spores**

Frank Handler and Jason Edmonds  
PanaSynoptics Corporation

**(4:50-5:10) Coupling Between PMSS and CONTAM: the Indoor/Outdoor Contaminant Transfer of a Hazardous Release**

Cyril Bonan, Armand Albergel, Christophe Olry, Maxime Nibart, Patrick Armand, and Christophe Duchenne  
ARIA Technologies

**(5:10-5:30) Nested PMSS: Multiple-scale Nesting of a Simplified Flow Model (SWIFT) and a Particle Model (SPRAY)**

Christophe Olry, Jacques Moussafir, Olivier Oldrini, Cyril Bonan, Maxime Nibart, Patrick Armand, and Christophe Duchenne  
ARIA Technologies

**(5:30) ADJOURN (END OF DAY 1)**

**DAY 2—WEDNESDAY, JUNE 25, 2014**

**(7:30 – ALL DAY) REGISTRATION (CONTINUED)**

**(7:30 – 9:30) CONTINENTAL BREAKFAST**

**Session 5-Special Jack Rabbit II Session**

Chair: Joe Chang, Homeland Security Studies and Analysis Institute

**(8:00-8:20) The DHS S&T CSAC Jack Rabbit II Program: Large-Scale Chlorine Release Field Trial Experiments**

Shannon B. Fox and George R. Famini

DHS Chemical Security Analysis Center

**(8:20-8:40) Jack Rabbit II Execution Preparation**

Donald P. Storwold Jr. and Frank W. Gallagher III

Dugway Proving Ground

**(8:40-9:00) Jack Rabbit II Data Quality Working Group**

Ronald G. Meris

Defense Threat Reduction Agency

**(9:00-9:20) Jack Rabbit II Dissemination and Near Source Working Group Update, The Best Laid Plans of Mice and Men...**

Tom O. Spicer

University of Arkansas

**(9:20-9:40) Comparison of Methods for Accounting for Initial Source Blanket or Mist Pool Associated with Large Dense Gas Releases**

Steven R. Hanna

Hanna Consultants

**(9:40-10:10) COFFEE BREAK**

**Session 6-Special Jack Rabbit II Session and HPAC Enhancements**

Chair: Steve Hanna, Hanna Consultants

**(10:10-10:30) Chlorine Source Modeling for S/K Challenge**

Richard J. Babarsky and Joe Leung

National Ground Intelligence Center

**(10:30-10:50) Numerical Simulation of the Dispersion of Chlorine Following the Release from a Pressurized Tank**

Thomas Vik and B. Anders Pettersson Reif

Norwegian Defence Research Establishment

**(10:50-11:10) Optimization of Sensor Grids for CBRN Release Tests**

Mark F. Quigley  
Sage Management

**(11:10-11:30) Jack Rabbit 2 Grid Size Analysis of a 10 Tonne Chlorine Release at Dugway Proving Ground, UT**

Edward P. Argenta and Ron Meris  
Engility Corporation/DTRA

**(11:30-11:50) Propagation of Dense Gas Clouds at Jack Rabbit**

Pablo Huq and Tom Spicer  
University of Delaware

**(11:50-12:10) Parallel SCIPUFF**

Doug Henn, Ian Sykes, Steve Parker, and Biswanath Chowdhury  
Sage Management

**(12:10-1:30) LUNCH BREAK**

**Session 7-Special OFCM Session**

Chair: Jeff McQueen, National Centers for Environmental Prediction

**(1:30-1:50) IMAAC—First Responder Perspective Case Study of Rubber Fire at a Warehouse, Waynesfield, OH**

Ronald G. Meris  
Defense Threat Reduction Agency

**(1:50-2:10) Operational Predictions of Atmospheric Dispersion at National Oceanic and Atmospheric Administration (NOAA)**

Ivanka Stajner  
National Oceanic and Atmospheric Administration

**(2:10-2:30) CAMEO-ALOHA Dispersion Model**

Mark W. Miller  
NOAA

**(2:30-2:50) RASCAL 4.3 Dispersion and Deposition Models**

J. V. Ramsdell, Jr.  
Ramsdell Environmental Consulting, LLC

**(2:50-3:10) Dugway Proving Ground Perspectives on the MATERHORN Field Campaigns**

Dragan Zajic and John Pace  
Dugway Proving Ground

**(3:10-3:30) COFFEE BREAK**

**Session 8-Special OFCM Session**

Chair: Jeff McQueen, National Centers for Environmental Prediction

**(3:30-3:50) Introduction to Project Sagebrush**

Kirk L. Clawson, Richard M. Eckman, Dennis D. Finn, Roger G. Carter, Brad R. Reese, and Jason D. Rich

NOAA Air Resources Laboratory

**(3:50-4:10) Use of the Granite Mountain Atmospheric Sciences Testbed for Meteorological Project Support**

John Pace and Dragan Zajic

Dugway Proving Ground

**(4:10-4:30) MetFetch: Automated Meteorological Data Retrieval for Fast-Running Emergency Response Codes**

Jeremy Rishel, Fred Rutz, George Athey, and Van Ramsdell Jr.

Pacific Northwest National Laboratory

**(4:30-4:50) The NCEP Meteorological Downscaling System (DNG)**

Jeff McQueen, Geoffrey Manikin, Manuel Pondeca, Geoff DiMego, Steven Levine, Matthew Pyle and Dana Carlis

National Centers for Environmental Prediction

**(4:50-5:10) Concluding Remarks and Discussions**

**(5:10) ADJOURN (END OF CONFERENCE)**