FINAL AGENDA
Twenty-ninth Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling

June 24-25, 2025
Conference Chairs:
Joseph Chang, RAND Corporation, Arlington, VA
Zafer Boybeyi, George Mason University, Fairfax, VA

Enterprise Hall, Room 80
George Mason University, Fairfax, VA

DAY 1 (June 24) Enterprise Hall, Room 80

Session 1-Modeling and Empirical Studies
Chair:

	9:55 AM	10:00 AM	Welcoming Remarks
1.1	10:00 AM	10:20 AM	**Recent Atmospheric Dispersion Modelling Research Activities at HSE**

Simon Gant[1], Rory Hetherington[1], Liam Gray[1], Helen Cruse[1], Harvey Tucker[1], Gemma Tickle[2]
[1] Health and Safety Executive, UK; [2] GT Science and Software, UK

1.2	10:20 AM	10:40 AM	**Preliminary Predictions of Refrigerated Ammonia Spills on Water Based on Equilibrium Constraints**

Tom Spicer
University of Arkansas, Fayetteville, AR

1.3	10:40 AM	11:00 AM	**Wind Field Resolutions in HPAC Using MC-SCIPUFF and the Urban Wind Field Model**

Sean Miner
Defense Threat Reduction Agency, Albuquerque, NM

1.4	11:00 AM	11:20 AM	**Three-dimensional Flow Interactions and Ventilation Dynamics Between Two Cross-ventilated Buildings**

Marc Samland[1], Haley Kampert[1], Tavis Cahanding[1], Pierson Ederle[1], Andrew Banko[1], Bret Van Poppel[1], Tuhin Bandopadhyay[2], Pranet Patil[2], Joseph Pelletiere[2], Laura Villafane[2], Brad Sutton[2]
[1] United States Military Academy, West Point, NY; [2] University of Illinois at Urbana-Champaign, Urbana, IL

1.5	11:20 AM	11:40 AM	**Aerosol Coagulation Results in the QUIC Model**

Hannah Brink[1], Sara Brambilla[1], Matthew Nelson[1], Diego Rojas[1], Kyle Gorkowski[1], Nevil Franco[2], Liam Wedell[3], Katherine Benedict[1]
[1] Los Alamos National Laboratory, Los Alamos, NM; [2] Unaffiliated; [3] National Oceanic and Atmospheric Administration

	11:40 AM	1:10 PM	*LUNCH BREAK*

Session 2-Model Development and Energetic Release
Chair:

2.1	1:10 PM	1:30 PM	**SCIPUFF Large-scale Analysis Capability (SLAC)**

2.1 | 1:10 PM | 1:30 PM | **SCIPUFF Large-scale Analysis Capability (SLAC)**
Steven Schneider
Parsons Corporation

2.2 | 1:30 PM | 1:50 PM | **A Green's Function Approach to Contaminant Dispersion in Urban Areas**
Andrew Banko
United States Military Academy, West Point, NY

2.3 | 1:50 PM | 2:10 PM | **Automating Workflows for Indoor and Urban Dispersion Studies within OpenFOAM**

Daniel Miller[1,2], Steven Hawkins[1], Andrew Woods[1], Finley Armitage[1], Suzie Abbs[1], James Christley[1], Atticus Hall-McNair[1,2], Tim Foat[1,2,3]

[1] *Defence Science and Technology Laboratory, Porton Down, Salisbury, UK;* [2] *Department of Aeronautical and Astronautical Engineering, University of Southampton, Southampton, UK;* [3] *School of Physics, Engineering and Computer Science, University of Hertfordshire, Hatfield, UK*

2.4 | 2:10 PM | 2:30 PM | **Alternative Source Characterization for Explosion-Driven Pollutant Dispersion in the Absence of Known Charge Mass**

Pierrette Atikpo[1,3,4], Bart Janssens[1], Charline Fouchier[2], Mark Runacres[3], David Lecompte[1], Delphine Laboureur[4]

[1] *Royal Military Academy, Belgium;* [2] *California Institute of Technology, Pasadena, CA;* [3] *Vrije Universiteit Brussel, Belgium;* [4] *von Karman Institute for Fluid Dynamics, Belgium*

2.5 | 2:30 PM | 2:50 PM | **Submunitions Modeling Challenges**
John Magerko[1], Ron Meris[2]

[1] *Applied Research Associates, Alexandria, VA;* [2] *Defense Threat Reduction Agency, Ft. Belvoir, VA*

2.6 | 2:50 PM | 3:10 PM | **Forecast of Atmospheric Oxidants and Radionuclides' Dispersion**
Yu Morino
National Institute for Environmental Studies, Tsubuka, Japan

2.7 | 3:10 PM | 3:30 PM | **Improvements in the PMSS Modelling System: Local Scale Turbulence Modelling in Rural And Built Environments, Introduction of Kernel Methods in the Particle Dispersion Algorithms, Extended Validations and Applications**

Maxime Nibart[1], Bruno Ribstein[1], Jacques Moussafir[1], Armand Albergel[1], Daniela Barbero[2], Gianni Tinarelli[2], Patrick Armand[3], Christophe Duchenne[3]

[1] *SUEZ/ARIA Technologies, Nanterre, France;* [2] *SUEZ/Arianet, Milano, Italy;* [3] *CEA, Arpajon, France*

	3:30 PM		*COFFER BREAK*
			DAY 1 ADJOURNS

DAY 2 (June 25) Enterprise Hall, Room 80

Session 3-Machine Learning and Decision Support Tools
Chair:

3.1 | 9:40 AM | 10:00 AM | **Towards an Understanding of Winds in Mountainous Terrain: A Physics-Informed Machine Learning Approach**
Jesse Slaten, Diego Rojas, Mathilda Nguyen, David Robinson, Shane Coffing, Arvind Mohan, Sara Brambilla

Los Alamos National Laboratory, Los Alamos, NM

| 3.2 | 10:00 AM | 10:20 AM | **Comparison of Different Machine Learning Techniques for Source Term Estimation** |

Scott Meech, Stefano Alessandrini
National Center for Atmospheric Research, Boulder, CO

| 3.3 | 10:20 AM | 10:40 AM | **Using High-Throughput Toxicokinetics (HTTK) Modeling as a Decision Support Tool for Evaluating Chemical Plume Impact on Populations** |

Marcus Chan Hua Rui, Tan Yeow Chien, Clayton Lim, Ma Yifei
Department of CBRNE Center of Expertise, Home Team Science and Technology Agency, Singapore

| 3.4 | 10:40 AM | 11:00 AM | **Atmospheric Dispersion Modelling for Informed Decision Making in Modern Nuclear Safety Cases** |

Robert Gordon[1], Melissa Cutler[1], Russell Mills[1], Murray Purves[1], Howard Chapman[2], Jeremy Edwards[2]

[1] *Riskaware, United Kingdom;* [2] *United Kingdom National Nuclear Laboratory, United Kingdom*

| 3.5 | 11:00 AM | 11:20 AM | **U.S. Navy Shipboard Performance Model** |

Taylor Anderson, Alyssa Cunningham, Ian Squires
Naval Surface Warfare Center, Indian Head Division, Indian Head, MD

| | 11:20 AM | 12:50 PM | *LUNCH BREAK* |

Session 4-Jack Rabbit and Emergency Response
Chair: Ron Meris, Defense Threat Reduction Agency

| 4.1 | 12:50 PM | 1:10 PM | **Jack Rabbit III Updates and Next Steps** |

Sun McMasters[1], Ronald Meris[2]

[1] *DHS Chemical Security Analysis Center, Aberdeen Proving Ground, MD;* [2] *Defense Threat Reduction Agency, Ft. Belvoir, VA*

| 4.2 | 1:10 PM | 1:30 PM | **Jack Rabbit III: Ammonia Characterization in a Controlled Environment Chamber** |

Sun McMasters[1], Ronald Meris[2], David Cotsman[3], Steve Hanna[4], Wayne Adams[5]

[1] *DHS Chemical Security Analysis Center, Aberdeen Proving Ground, MD;* [2] *Defense Threat Reduction Agency, Ft. Belvoir, VA;* [3] *Transport Canada, Ottawa, Canada;* [4] *Hanna Consultants, Kennebunkport, ME,* [5] *Air Force Institute of Technology, Scientific Test and Analysis Techniques Center of Excellence, Homeland Security Community of Best Practices, Wright-Patterson AFB, OH*

| 4.3 | 1:30 PM | 1:50 PM | **It's All About Interpretation - What Responders Really Need to Know** |

Robert J. Bradley
Emergency Management Solutions, Inc.

| 4.4 | 1:50 PM | 2:10 PM | **Need for Assisting First Responders with Adequate Modeling Tools for Ammonia Incidents Involving a Nurse Tank** |

Joseph Chang
RAND Corporation, Arlington, VA

| 4.5 | 2:10 PM | 2:30 PM | **Two-Phase Ammonia Plume Behavior in a Still Room: Jack Rabbit III Chamber Studies** |

Steve Hanna
Hanna Consultants, Kennebunkport, ME

| | 2:30 PM | 3:10 PM | *COFFEE BREAK* |

Session 5-Model Comparison Studies and Evaluation Methods

5.1   3:10 PM   3:30 PM   **Experimental Setup and Selected Validation Results of a Chemical Plume Dispersion and Mitigation Platform**
Yifei Ma, Sheldon Oh, Yeow Chien Tan, En Rui Liang, May Ong
Department of CBRNE Center of Expertise, Home Team Science and Technology Agency, Singapore

5.2   3:30 PM   3:50 PM   **Near-field Smoke Dispersion Modeling Using HYSPLIT for Alaska Oil Burn Experiment**

Fong Ngan[1,2], Alice Crawford[1], Hyun Cheol Kim[1,2], Johanna Aurell[3], Brian Gullett[3], Karen Stone[4], Victoria Scholl[5,6], Josip Adams[5,6], and Mark Cohen[1]

[1] Air Resources Laboratory, National Oceanic and Atmospheric Administration, College Park, MD; [2] Cooperative Institute for Satellite Earth System Studies, University of Maryland, College Park, MD; [3] U.S. Environmental Protection Agency, Office of Research and Development, Research Triangle Park, NC; [4] U.S. Department of the Interior, Bureau of Safety and Environmental Enforcement, Sterling, VA; [5] U.S. Geological Survey, Geosciences and Environmental Change Science Center, Denver, CO; [6] U.S. Geological Survey, National Uncrewed Systems Office, Denver, CO

5.3   3:50 PM   4:10 PM   **Urban SCIPUFF Model Improvements and Field Test Comparisons**
Douglas Henn, Glenn Hunter, Caleb Wagner and David Lim
Xator LLC, a Parsons Company

5.4   4:10 PM   4:30 PM   **HPAC Modeling of the Konza Prairie Watershed Fires During the PHLIERS Project**
Matthew King[1], Andy Grose[1], Matthew Huyser[2], Eric Pohl[3], Michael Pirhalla[4], Brian K. Gullett[4], Jeffery Wawczak[5], Roger Lucheta[1], Leann Anthony[1]
[1] Defense Threat Reduction Agency, Albuquerque, NM; [2] EPA OSC, Region 4; [3] EPA OSC, Region 5; [4] EPA ORD; [5] EPA OSC, Region 3

5.5   4:30 PM   4:50 PM   **Model Validation Levels: An Automated Tool for Quantifying Model Validity**
Corinne Stafford, Nick Jones, Kyle Provost, Wayne Adams

Air Force Institute of Technology, Scientific Test and Analysis Techniques Center of Excellence, Homeland Security Community of Best Practices, Wright-Patterson AFB, OH

    4:50 PM   ***DAY 2 ADJOURNS***

    7:00 PM   ***NO-HOST SOCIAL DINNER, PLACE TBD***