AGENDA
Twentieth Annual George Mason University Conference on Atmospheric Transport and Dispersion Modeling

June 14-16, 2016
Conference Chairs:
Joseph Chang, Homeland Security Studies and Analysis Institute, Falls Church, VA
Zafer Boybeyi, George Mason University, Fairfax, VA

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

Last updated: 6/10/2016

DAY 1 (June 14)

Session 1-Urban Dispersion International Evaluation Exercise (UDINEE)
Chair: Joe Chang, Homeland Security Studies and Analysis Institute

8:00 AM – 8:10 AM Welcoming remarks

8:10 AM – 8:30 AM **GMU Workshop/Conference History**
Steven Hanna, David Bacon, Zafer Boybeyi, and Joseph Chang
Hanna Consultants, Leidos, GMU, HSSAI

8:30 AM – 8:50 AM **UDINEE Project: The First Multi-model Urban Dispersion Model Comparison for Radiological Dispersion Device Releases**
Miguel A. Hernández-Ceballos, Stefano Galmarini, Steven Hanna, Thomas Mazzola, Joseph Chang, Roberto Bianconi, Roberto Bellasio
European Commission, Joint Research Centre, Ispra, Italy

8:50 AM – 9:10 AM **UDINEE Project: First Results Comparing Observed and Modeled Time Series and Spatial Model Forecasting Results**
Miguel A. Hernández-Ceballos, Stefano Galmarini, Steven Hanna, Thomas Mazzola, Joseph Chang, Roberto Bianconi, Roberto Bellasio
European Commission, Joint Research Centre, Ispra, Italy

9:10 AM – 9:30 AM **Consideration of Possible Future Developments to the Urban Scheme in the NAME Model**
Lois Huggett, David Thomson, and Helen Webster
Met Office, Exeter, United Kingdom

9:30 AM – 9:50 AM **Canadian Urban Flow and Dispersion Modeling System (CUDM): Prototype**
Najat Benbouta, Nils Ek, and Pierre Bourgouin
Environment Canada, Dorval, Canada

9:50 AM – 10:10 AM **UDINEE Project: Description of ESTE Approach and Results**
Ludovit Liptak, Peter Carny, and Eva Fojcikova
ABmerit, Slovakia

10:10 AM – 10:40 AM ***COFFEE BREAK***

Session 2-Visualization Techniques and Indoor/Outdoor Transport
Chair: Julie Pullen, Steven Institute of Technology

10:40 AM – 11:00 AM **HPAC Analyst - Results Analysis and Visualization for HPAC**
Steven Schneider, Ian Sykes, and Doug Henn
Sage Management

11:00 AM – 11:20 AM **Integration of Google Maps/Earth with Microscale Meteorology Models and Data Visualization**
Giap Huynh, Yansen Wang, and Chatt Williamson
U.S. Army Research Laboratory

11:20 AM – 11:40 AM **Simulating the Ingress of a Hazardous Material into a Residential Building**
Simon Batchelor , Simon Parker, and Steven Herring
Defence Science and Technology Laboratory Porton Down, Salisbury, United Kingdom

11:40 AM – 12:00 PM **Recent Developments in "Box Models" for Estimating Indoor-Outdoor Transport**

David M. Lorenzetti and Michael D. Sohn
Lawrence Berkeley National Laboratory

12:00 PM 1:20 PM ***LUNCH BREAK***

Session 3-Special OFCM Session
Field Experiments and Observational Networks to Support Challenges with High Resolution Dispersion Models and
Chair: Jeff McQueen, NOAA/National Weather Service

1:20 PM 1:30 PM **OFCM session introduction**
Jeff McQueen and OFCM ATD staff
NOAA/National Weather Service

1:30 PM 1:40 PM **DTRA Modeling for Smoke, Dust, Volcanic Ash**
Ronald Meris
Defense Threat Reduction Agency

1:40 PM 1:50 PM **Introduction of HABIT v2.0 Code**
Casper Sun, Thomas Spicer, and Syed Haider
Nuclear Regulatory Commission

1:50 PM 2:10 PM **Mock Urban Setting Test (MUST) and Granite Mountain Atmospheric Science Testbed (GMAST) at Dugway Proving Ground**
John Pace, Dragan Zajic, Donald Storwold, Erik Vernon
Dugway Proving Ground

2:10 PM 2:30 PM **Dispersion Simulations of Inline HYSPLIT for Sagebrush Tracer Experiment**
Fong (Fantine) Ngan and Ariel Stein
NOAA/Air Resources Laboratory and CICS/University of Maryland

2:30 PM 2:50 PM **Army Research Lab's Meteorological Sensor Array, White Sands Missile Range**
Chatt Williamson
U.S. Army Research Laboratory

2:50 PM 3:20 PM ***COFFEE BREAK***

Session 4-Special OFCM Session
Field Experiments and Observational Networks to Support Challenges with High Resolution Dispersion Models and
Chair: Daniel Meléndez, NOAA/National Weather Service

3:20 PM 3:40 PM **The Mountain Terrain Atmospheric Modeling and Observations (MATERHORN) Program (2011-2016)**
Harindra J.S. Fernando, Joshua Hacker, Fotini Katopodes Chow, Eric Pardyjak, and Stephan F.J. de Wekker
University of Notre Dame

3:40 PM 4:00 PM **Overview of the 2015-2016 Jack Rabbit II Chlorine Release Field Trials**
Shannon Fox, Mark Whitmire, Leo Stockham, Ronald Meris, Thomas Mazzola, Joseph Chang, Steven Hanna, Thomas Spicer, Michael Sohn, Damon Nicholson, and Andy Byrnes
Chemical Security Analysis Center

4:00 PM 4:20 PM **New York State Mesonet: First 3D Mesonet and Possible Dispersion Applications**
Everette Joseph
University at Albany

4:20 PM 4:40 PM **The Second Wind Forecast Improvement Project (WFIP2): Observations and Model Evaluation**
James Wilczak, R. Banta, L. Benjamin, S. Benjamin, L. Berg, L. Bianco, J. Bickford, A. Brewer, A. Choukulkar, K. Clawson, A. Clifton, J. Cline, D. Cook, I. Djalalova, H. Fernando, K. Friedrich, E. Grimit, J. Kenyon, B. Kosovic, C. King, K. Lantz, C. Long, J. Lundquist, M. Marquis, J. McCaa, K. McCaffrey, S. Midya, V. Morris, J. Olson, Y. Pichugina, J. Sharp, M. Stoelinga, W. Shaw, K. Wade, S. Wharton
NOAA/Earth System Research Laboratory

4:40 PM 4:50 PM **An introduction to the Modelers' Data Archive**
Joseph Chang and Steven Hanna
Homeland Security Studies and Analysis Institute

4:50 PM 5:30 PM **Discussion, Future Needs, and Science Priorities**
Jeff McQueen and Daniel Meléndez
NOAA/National Weather Service, Office of the Federal Coordinator for Meteorology

5:30 PM ***DAY 1 ADJOURNS***

DAY 2 (June 15)

Session 5-Jack Rabbit II Field Experiment
Chair: Leo Stockham, Leidos

8:00 AM – 8:20 AM **Jack Rabbit II Field Tests: Disseminator Data and Preliminary Analysis**
Tom Spicer
University of Arkansas

8:20 AM – 8:40 AM **Blowdown Modeling of the Jack Rabbit II Releases**
Rick Babarsky, Joe Leung, and Ian Sykes
U.S. Army

8:40 AM – 9:00 AM **Preliminary Analysis of Observations from the Jack Rabbit II–2015 Field Experiment on Dense Gas Dispersion in a Built Environment**
Steven Hanna, Joseph Chang, Thomas Spicer, Michael D. Sohn, Shannon Fox, Mark Whitmire, Leo Stockham, Thomas Mazzola
Hanna Consultants

9:00 AM – 9:20 AM **Field Observations of Dense Gas Transport in Office Trailers and Synthetic Buildings**
Michael D. Sohn, William W. Delp, and Wanyu Rengie Chan
Lawrence Berkeley National Laboratory

9:20 AM – 9:40 AM **Integrated Puff and Lagrangian Particle Modeling of Dense Gas Dispersion for Jack Rabbit II**
Jeff Weil, D. Steinhoff, and L. Delle Monache
National Center for Atmospheric Research

9:40 AM – 10:00 AM **Simulation with PMSS and Code_SATURNE of Some Jack Rabbit II Experiments**
F. Gomez, J. Moussafir, M. Nibart, L. Makke, G.Tinarelli, P. Armand, C. Duchenne, O. Oldrini, S. Bereznicki, and R. Vernot
ARIA Technologies, Boulogne-Billancourt, France

10:00 AM – 10:30 AM ***COFFEE BREAK***

Session 6-Jack Rabbit II Field Experiment & Climate Data Sets for Modeling
Chair: Thomas Mazzola, Engility Corporation

10:30 AM – 10:50 AM **Application of the Aeolus Fast CFD Model for Simulating Chlorine Releases During Jack Rabbit II Field Experiments**
Akshay Gowardhan
Lawrence Livermore National Laboratory

10:50 AM – 11:10 AM **Jack Rabbit II Modeling Support Using QUIC-Railcar**
David Morad
Naval Surface Warfare Center Dahlgren

11:10 AM – 11:30 AM **Integral Model Predictions of Chlorine Dispersion for the Proposed Jack Rabbit II Experiments in 2016**
Bryan McKenna, Maria Mallafrè Garcia, Simon Gant, Harvey Tucker, Graham Tickle, Rachel Batt, Henk Witlox, and Jan Stene.
Health and Safety Laboratory, Harpur Hill, United Kingdom

11:30 AM – 11:50 AM **New Features of the Global Climatological Analysis Tool (GCAT)**
Stefano Alessandrini, Francois Vandenberghe, Yonghui Wu, Wanli Wu, and Richard J. Babarsky
National Center for Atmospheric Research

11:50 AM – 12:10 PM **Self-Organizing Maps to Generating Reduced-Size, Statistically Similar Climate Datasets**
Ryan Cabell, Daniel Steinhoff, and Luca Delle Monache
National Center for Atmospheric Research

12:10 PM – 1:30 PM ***LUNCH BREAK***

Session 7-Dispersion Modeling Studies
Chair: Steve Hanna, Hanna Consultants

1:30 PM – 1:50 PM **Novel Ensemble Atmospheric Modeling Techniques for the Simulation of Large-Scale Dispersion**
David Werth, Grace Maze, Robert Buckley, Steven Chiswell, Robert Kurzeja, and Brian Viner
Savannah River National Laboratory

1:50 PM – 2:10 PM **Dispersion Behavior in Severe Vapor Cloud Explosion Incidents**
Simon Gant, Graham Atkinson and Harvey Tucker

Health and Safety Executive, Harpur Hill, United Kingdom

2:10 PM 2:30 PM **LIDAR Backscatter and Wind Data Assimilation into the Second Order Closure Integrated PUFF (SCIPUFF) Model**
Paul E. Bieringer, Scott Higdon, George Bieberbach, Jonathan Hurst, and Shane Mayor
Aeris LLC

2:30 PM 2:50 PM **A Microscale CFD Simulation of Three Days in a Neighborhood of Toulouse for Pollutant Dispersion**
Zhenlan Gao, Raphael Bresson, and Bertrand Carissimo
Centre d'Enseignement et de Recherche en Environnement Atmosphérique, Chatou, France

2:50 PM 3:10 PM **The Effects of the General Power Outage in Turkey in 2015 to Pollutant Concentrations**
Orhan Şen and Ramazan Özgenc
İstanbul Technical Universit, Istanbul, Turkey

3:10 PM 3:40 PM ***COFFEE BREAK***

Session 8-Joint Effects Model Increment 2 (JEM 2)
Chair: Tom Spicer, University of Arkansas

3:40 PM 4:00 PM **Joint Effects Model (JEM 2.0) Technology and Program Status**
Sami Rishmawi
JPMIS

4:00 PM 4:20 PM **Joint Effects Model (JEM) 2.0 Uses CCMI Standards for Rapid S&T Integration into Operational Environments**
Mark Brosnan, Michael Rocheleau, George Bieberbach, Jonathan Hurst, Phil Wingfield, Martyn Bull, Matthew Ward, Thomas Smith, Eric Rial, Sami Rishmawi, and Russ Brown
General Dynamic Information Technology

4:20 PM 4:40 PM **The Urban Sub-system Capability and its Future Integration into CCMI Systems**
Steven Herring and Martyn Bull
Defence Science and Technology Laboratory Porton Down, Salisbury, United Kingdom

4:40 PM 5:00 PM **Verification of the Joint Effects Model Increment 2**
George Bieberbach, Jonathan Hurst, Michael Rocheleau, Mark Brosnan, Luke Jadamec, Phil Wingfield, Martyn Bull, Kevin Grunenberg, Matthew Queenan, Thomas Smith, Eric Rial, Sami Rishmawi, and Russ Brown
Aeris LLC

5:00 PM 5:20 PM **Independent Results Validation of the Joint Effects Model (JEM) 2.0**
Joseph Chang, Steven Hanna, and James Bowers
Hanna Consultants

5:20 PM ***DAY 2 ADJOURNS***

DAY 3 (June 16)

Session 9-DTRA Reachback
Chair: Ronald Meris, Defense Threat Reduction Agency

8:00 AM 8:20 AM **National CWMD Technical Reachback Enterprise (NCTRE)**
MAJ Christopher Nohle
Defense Threat Reduction Agency

8:20 AM 8:40 AM **How Decision Makers Use HPAC Hazard Plots**
Ronald Meris
Defense Threat Reduction Agency

8:40 AM 9:00 AM **HPAC Terrain, Land Cover and Weather Options: A Sensitivity Study**
Yaitza Luna-Cruz and Christopher Marciano
Defense Threat Reduction Agency

9:00 AM 9:20 AM **Indoor Hazard Modeling: An Operational Perspective**
Mariana Cruz
Defense Threat Reduction Agency

9:20 AM 9:40 AM **DTRA/SCC-WMD Technical Reachback Support of Jack Rabbit II Testing: Cl2 Plume and Concentration Analysis with HPAC**

Steven Simpson and Sean Miner
Defense Threat Reduction Agency

9:40 AM 10:00 AM **Preliminary Assessment of Urban Dispersion Modeling (UDM) Performance for UDINEE and the Joint Urban 2003 Urban Dispersion Experiment**
Sean Miner, Thomas Mazzola, and John Magerko
Defense Threat Reduction Agency

10:00 AM 10:30 AM ***COFFEE BREAK***

Session 10-Validation and Development
Chair: Paul Bieringer, Aeris LLC

10:30 AM 10:50 AM **Validation of Five Hazard Assessment Models Against the Modelers' Data Archive**
Timothy J. Bauer
Naval Surface Warfare Center Dahlgren

10:50 AM 11:10 AM **Assessing the Performance of Atmospheric Dispersion Models to Support Emergency Response**
Steven Herring and Pablo Huq
Defence Science and Technology Laboratory Porton Down, Salisbury, United Kingdom

11:10 AM 11:30 AM **Evaluating Atmospheric Transport and Dispersion Models with Perfluorocarbon Tracer Experiments**
Thomas Watson
Brookhaven National Laboratory

11:30 AM 11:50 AM **JECP System Performance Model (SPM) SKUI Model Development**
Harold K. Barnette
Naval Surface Warfare Center Dahlgren

11:50 AM 12:10 PM **SHARC: Waterborne Hazard Forecasting for the Maritime Environment**
Jennifer Cragan, Richard Fry, Ronald Meris, and Matthew ward
Maritime Planning Associates

12:10 PM 1:30 PM ***LUNCH BREAK***

Session 11-Dispersion Modeling Studies and Health Effects
Chair: Zafer Boybeyi, George Mason University

1:30 PM 1:50 PM **Time of Cloud Arrival Predicted for Emergency Response**
Ludovit Liptak, Peter Carny, and Eva Fojcikova
ABmerit, Slovakia

1:50 PM 2:10 PM **Retrieval of Unknown Elevated Emissions in Urban Environments using Building Resolving CFD Approach**
Pramod Kumar, Amir-Ali Feiz, Sarvesh Kumar Singh, Pierre Ngae, Grégory Turbelin, Nadir Bekka
Universite d'Evry-Val d'Essonne, France

2:10 PM 2:30 PM **Turbulent Flow Simulations in Urban Using a Lattice Boltzmann Model**
Yansen Wang, Benjamin MacCall, Giap Huynh, and Leelinda Dawson
U.S. Army Research Laboratory

2:30 PM 2:50 PM **Internal Building Hazard (IBH) – Capabilities: Current and Future**
Matthew G. Wolski
Naval Surface Warfare Center Dahlgren

2:50 PM 3:10 PM **Are Toxic Load-based Toxicity Models Consistent with Experimental Observations? Independent Analysis of Steady-exposure Data from the 2012–2013 ECBC/NAMRU-D Toxicological Experiments**
Alexander J. Slawik, Kevin C. Axelrod, James B. Silva, Ivo K. Dimitrov, Jeffry T. Urban, and Nathan Platt
Institute for Defense Analyses

3:10 PM 3:30 PM **Radiological EIA based on Land Use Data from Remote Sensing Technology**
Eva Fojcikova, Ludovit Liptak, and Peter Carny
ABmerit, Slovakia

3:30 PM 3:50 PM **The AIRCITY Platform. Application of the High-resolution PMSS Model (Parallel Micro SWIFT SPRAY) to Several Large Cities Worldwide: Paris, Rome, Hong-Kong, Torino, Wuhan, Milano. Lessons Learned and Operational Issues**
J. Moussafir, M. Nibart, F. Velay, Q. Zhang, G.Tinarelli, G.Carlino, R. Prandi, P.Armand, C.Duchenne, and O. Oldrini
ARIA Technologies, Boulogne-Billancourt, France

3:50 PM ***DAY 3 ADJOURNS***