

2022

Community Modeling & Analysis System Conference



celebrating
years
of CMAS

Oct 17-19 | Chapel Hill, NC

01 ► **TABLE OF CONTENTS**

Welcome Letter.....2

Agenda.....3

 Day 1.....3

 Posters.....6

 Day 2.....8

 Posters.....11

 Day 3.....12

Important Links.....15

Map of Friday Center.....16

21st Annual

CMAS

Conference

Oct. 17-19, 2022 | Chapel Hill

Online CMAS 2022
Conference Agenda



02 | WELCOME

Welcome to the 21st Annual Conference of the Center for Community Modeling and Analysis System (CMAS). Since the first edition in 2001, CMAS conferences have become a popular platform to learn about advances in local-to-regional scale air quality modeling and applications both within and outside the U.S.

The U.S. Environmental Protection Agency has collaborated with several leading researchers in atmospheric modeling software infrastructure to establish the non-profit CMAS Center to support the air quality modeling user community in the U.S. and abroad. The University of North Carolina at Chapel Hill (UNC) has been the host of the CMAS Center through competitively awarded, successive multi-year EPA contracts since its inception in 2001.

The CMAS Center is a functional entity, providing expertise in support of open-source, public domain air quality model products. UNC has developed an exemplary reputation as the host of the CMAS Center over the past 21 years. The CMAS Community includes nearly 10,000 participants from around the world. The community of CMAS users includes regulatory, academia, federal, state, and local governments, industry, consultants, and international users from nearly 100 countries. The CMAS website (<https://www.cmascenter.org>) with its multiple model component links, is a globally renowned information hub for air quality modelers seeking software, data, support, and training. During the past two decades, UNC's CMAS Center has managed over 200 product releases (~50 in the past five years alone) of 14 open-source modeling and analyses tools including CMAQ, SMOKE, AMET, MCIP, I/O API, Spatial Allocator, VERDI – all critical tools for a global air quality modeling community. The CMAS help desk provides technical guidance from software developers and expert users to address questions on CMAS software products from the user community.

UNC has established in the CMAS Center a dynamic education and outreach program that includes workshops, training, a visiting scientist program, annual conference(s), and a robust record of > 9,000 peer-reviewed publications. Over the past decade, in collaboration with EPA, UNC has organized more than 11 workshops on specific topics of scientific interest, including bi-annual peer reviews of the CMAQ model. The CMAS training program is highly regarded by the user community and has trained more than 4,000 users from the U.S. and abroad, at no cost to the EPA. A major benefit of the conference has been CMAS Center's coordination with leading environmental journals to publish special issues of selected, peer-reviewed papers from the conference presentations. The CMAS Center engages a broad spectrum of community members, spanning academia, government, and private industry to serve on its External Advisory Committee (EAC) and provide guidance on ways to improve the CMAS support services to the user community. Through the CMAS Visiting Scientist program, UNC hosts scientists on extended visits (from one month to a year) to study or develop modeling components and methods in collaboration with CMAS and EPA scientists. CMAS also hosts webinar series on relevant topics of interest throughout the year.

Around the world, 9 out of 10 people breathe unhealthy air. Air pollution is now the biggest environmental risk for premature deaths, responsible for more than six million premature deaths each year from heart attacks, strokes, diabetes, and respiratory diseases. Based on evidence-based data and information and a growing awareness that no amount of air pollution is safe for human beings, the World Health Organization (WHO) has recently revised air quality guidelines that will save lives by reducing preventable airborne pollutant deaths. Within the U.S., while the GDP grew by 187% from 1980 to 2021, emissions of criteria pollutants fell by 73%. The modeling tools supported by the CMAS Center will be critical for continued sustainable growth to understand sources of air pollution, and to develop policies that target emissions reduction measures leading to protection of public as well as ecosystem health.

With its global outreach activities, CMAS East Asia and CMAS South America conferences are being planned to be held in Japan and Brazil respectively in 2023.

It is so nice to be back in-person to welcome you all after two years of virtual events. On behalf of the CMAS team at UNC, I hope you enjoy your time at this 21st annual conference and celebration, and I look forward to meeting each of you.

Saravanan Arunachalam, Ph.D.

Director | Center for Environmental Modeling for Policy Development

Deputy Director | Institute for the Environment

03 | **AGENDA**

DAY 1 | October 17, 2022

GRUMMAN AUDITORIUM

Plenary Session

7:30 AM

Registration and Continental Breakfast

Atrium

8:00 AM

A/V Upload

Grumman Auditorium & Dogwood Room

8:30 AM

Opening Remarks

Barbara J. Stephenson, Vice Provost for Global Affairs and Chief Global Officer, UNC-Chapel Hill

Grumman Auditorium

8:45 AM

State of the CMAS Center

Sarav Arunachalam, CMAS Center Director, UNC-Chapel Hill

Grumman Auditorium

9:00 AM

Agricultural Air Pollution Policy and Impacts: an Almanac

Prof. Ann Marie Carlton, UC-Irvine

Grumman Auditorium

9:45 AM

Break

Blueberry Hill

10:05 AM

AMORE Isoprene: Automated Model Reduction for Improved Air Quality and SOA Modeling in CMAQ

Prof. Faye McNeill, Columbia University

Grumman Auditorium

10:50 AM

Seamless Prediction: From Earth System to Integrated Urban Hydrometeorology, Climate and Environment Systems

Dr. Alexander Baklanov, World Meteorological Organization (WMO)

Grumman Auditorium

11:35 AM

Conference Logistics

Erin Valentine, UNC-Chapel Hill

Grumman Auditorium

11:45 AM

Lunch

Trillium

04 | AGENDA

DAY 1 | October 17, 2022

GRUMMAN AUDITORIUM

Air Quality, Climate & Energy

Chaired by Prof. Noah Kittner (UNC) and Dan Loughlin (EPA)

12:45 PM

Modeling the Contributions of Major Sources to Atmospheric Nitrogen Deposition in the United States
Sharmin Akter

1:05 PM

Impact of Severe Drought on Air Quality in California
Huazhen Liu

1:25 PM

Resilience Benefits of Replacing Diesel Backup Generators with PV-Plus-Storage Microgrids for California Public Buildings
Sunjoo Hwang

1:45 PM

Potential impact of future climate on winter time particulate matter in the western U.S.
Abi Lawal

2:05 PM

Performance of an electrified U.S. passenger car fleet in 2050 under future climate scenarios on air quality
Abi Lawal

2:25 PM

Impacts of Future Energy Transition on the U.S. Air Quality and Mortality
Yang Zhang

DOGWOOD ROOM

COVID-19 Impacts on Emissions
Air Quality & Multiscale Model Applications
Chaired by Fahim Sidi (EPA) and Prof. Marina Astitha (UConn)

12:45 PM

Hemispheric-Scale Evaluation of CMAQv5.4
Christian Hogrefe

1:05 PM

Evaluation of Regional-Scale CMAQv5.4 for North America
K. Wyatt Appel

1:25 PM

Recent advancement of EPA's global air quality modeling system: MPAS-CMAQ
Jeff Willison

1:45 PM

Retrospective, Multiannual Evaluation of the Canadian Operational Regional Air Quality Deterministic Prediction System against North American Surface Observations
Alexandru Lupu

2:05 PM

ECCC's first-generation 10 km North America reforecast dataset for air quality
Xihong Wang

2:25 PM

Evaluating Methods of Representing Lightning NOx Emissions Across the Northern Hemisphere
J. Mike Madden

2:45 PM

Break

3:15 PM

Development of air pollutant emission projections for alternative scenarios of the future using GLIMPSE/GCAM-USA 5.4

3:15 PM

Integrating a reduced complexity model into a hybrid modeling framework
Britney Russell

05 | AGENDA

DAY 1 | October 17, 2022

GRUMMAN AUDITORIUM

Air Quality, Climate & Energy

Chaired by Prof. Noah Kittner (UNC) and Dan Loughlin (EPA)

3:35 PM

Examining the Air Quality Co-benefits of Two Alternative Future Emission Scenarios Modeled in GCAM-USA version 5.4
Uma Shankar

3:55 PM

Spatiotemporal Trends in PM_{2.5} Chemical Composition in the Continental U.S. during 2006-2021
Bin Cheng

4:15 PM

Impacts of accelerating decarbonization in China on the countrys power system and public health
Qian Luo

4:35 PM

Assessing the tradeoffs in emissions, air quality and health benefits from excess power generation due to climate-related policies for the transportation sector
Christos Efstathiou

4:55 PM

High-resolution modeling of air quality and health benefits of transportation policies in the Boston Metropolitan area
Manish Soni

5:15 PM

Poster Introductions
Air Quality, Climate and Energy
Model Development

DOGWOOD ROOM

COVID-19 Impacts on Emissions
Air Quality & Multiscale Model Applications
Chaired by Fahim Sidi (EPA) and Prof. Marina Astitha (UConn)

3:35 PM

Investigation of Impacts of Flaring and Venting from Onshore Oil and Gas Production in the United States on Air Quality using CMAQ-DDM
Huy Tran

3:55 PM

Satellites, Machine Learning, and Numerical Weather Prediction: Applications to Lake Breeze Events in the Great Lakes Basin
Tsengel Nerguie

4:15 PM

Modeling the wintertime meteorology for the 2022 Alaskan Layered Pollution and Chemical Analysis (ALPACA) campaign
Robert Gilliam

4:35 PM

Impact of short-term and long-term COVID-19 intervention on power plant emissions in the United States using generalized synthetic control causal inference methods
Munshi Md Rasel

4:55 PM

The Pandemic Bottom-up National Emissions Inventory Development using Human Activity, Satellite Retrieval, and Chemical Transport Model
Chi-Tsan Wang

5:15 PM

Poster Introductions
Multiscale Model Applications
Remote Sensing/Sensor Technology & Measurements Studies

5:30 PM

Reception and Poster Session
Atrium

7:00 PM

Adjourn

Air Quality, Climate & Energy

Elevated Tropospheric Ozone Impacts on Soybean Production in the United States from 1985 to 2015
Sharmin Akter

PM2.5-Attributable Mortality: How sensitive are mortality estimates to air quality model, population demographics, or exposure level?
Elizabeth A.W. Chan

Black carbon emissions and associated health impacts of gas flaring in the United States
Chen Chen

Highlighted features of the WUDAPT Decade relevant to CMAS
Jason Ching

Dynamically downscaling global climate and chemistry in WRF and CMAQ to understand impacts of climate change and variability on future US PM2.5
Surendra Kunwar

How does meteorology affect major pollutant concentrations over Beijing, China?
Shreya Guha

Model Development

Application of Lightning Data Assimilation to the Multiscale Kain Fritsch Convective Parameterization
Matthew Alvarado

Spatiotemporal variability of US ammonia dry deposition using public, observation-based datasets and the Surface Tiled Aerosol and Gaseous Exchange (STAGE) model
Colleen Baublitz

The Community Multiscale Air Quality (CMAQ) Model Version 5.4
Fahim Sidi

Impacts of increased rates of organosulfate formation in CMAQ predictions of acid-catalyzed reactive uptake of isoprene-derived epoxydiols
Alexandra Ng

Assessing CMAQ Performance for Aerosol Chemistry During Persistent Cold Air Pool (PCAP) Events
Cam Phelan

Remote Sensing/Sensor Technology & Measurements Studies

Applying Machine Learning Techniques to Track Smoke Plumes
Matthew Alvarado

Generalized Additive Modeling to Characterize PM2.5 Behavior in California
Duncan Quevedo

Multiscale Model Applications & Evaluations

Applying a Machine Learning and Multi-Media Modeling Framework to Predict Tributary Phosphorus Loads
Marina Astitha

Satellite data processing for CMAQ
Barron Henderson

Ultrafine Particles due to Aircraft Landing and Takeoff operations at Boston Logan A
Measurement and Modeling Study
Hyeongseok Kim

Analysis of the impact of dust emissions on aerosol optical depth over the Northern Hemisphere as simulated by CMAQv5.3.2 for the EQUATES project
Rebecca Miller

A Java-based GUI to drive the Atmospheric Model Evaluation Tool (AMET)
Michael Morton, Robert Gilliam

Global Nitrogen and Sulfur Budgets Using a Measurement-Model Fusion Approach
Hannah J. Rubin

08 | AGENDA

DAY 2 | October 18, 2022

7:30 AM

Registration and Continental Breakfast

8:00 AM

A/V Upload

GRUMMAN AUDITORIUM

Air Quality & Environmental Justice
Modeling to Support Exposure & Health Studies
for Community-Scale Applications

Chaired by Dr. Vlad Isakov (EPA) and Prof. Amir
Hakami (Carleton University)

9:00 AM

US coal power plant emissions changes and
inequities since 1999

Lucas Henneman

9:20 AM

Incorporating Model-based Equity Analyses
into Air Quality Planning & Environmental Jus-
tice Programs in the San Francisco Bay Area

Stephen Reid

9:40 AM

Accelerated Electric Vehicle Fleet Penetration:
Emissions, Air Quality, and Environmental
Justice Benefits

Shih Ying Chang

10:00 AM

Estimating the Societal Benefits of Reducing
PM25 and Precursor Emissions via
Hemispheric Adjoint Analysis

Amir Hakami

10:20 AM

Assessment of Vulnerability to Wildfire-
induced PM2.5 in the U.S. Using Community
Multiscale Air Quality Modeling System

Jihoon Jung

DOGWOOD ROOM

Emissions Inventories, Models, and Processes

Chaired by Jeff Vukovich (EPA) and Prof. Hosein
Foroutan (Virginia Tech)

9:00 AM

The Burden of Lightning NOx Emissions over
the Contiguous United States and the
Northern Hemisphere Derived Using
Observational and Climatological Approaches

Daiwen Kang

9:20 AM

Comparison of source apportionment
methods using CMAQ for the Madrid Region

Rafael Borge

9:40 AM

Anthropogenic Secondary Organic Aerosol
and Ozone from Asphalt-Related Emissions

Karl Seltzer

10:00 AM

Assessing the impact of Scrubber on shipping
emissions in Canada

Mourad Sassi

10:20 AM

MARINER: Development and Application of a
Shipping Emissions Estimation Program

Fiona Jiang & Beata Czader

10:40 AM

Break

11:10 AM

2018 AirToxScreen: EPAs Screening-Level
Assessment Tool for Outdoor Air Toxics

Caroline Farkas & Matthew Woody

11:10 AM

Public health effects from the adoption of
Californias Advanced Clean Cars II regulation
in Oregon and Connecticut in 2030 and 2040

Jiaoyan (Joey) Huang

09 | AGENDA

DAY 2 | October 18, 2022

GRUMMAN AUDITORIUM

Air Quality & Environmental Justice
Modeling to Support Exposure & Health Studies
for Community-Scale Applications

Chaired by Dr. Vlad Isakov (EPA) and Prof. Amir Hakami (Carleton University)

11:30 AM

Mortality and Morbidity Attributable to
Wildland Fire Smoke in California from 2008-
2018

Joseph Wilkins

11:50 AM

Studies for Influence of Dusty Cargo
Handling on a Port City in India

Umangi Mehta

12:10 PM

Distribution of Air Quality Health Benefits of
Medium and Heavy-Duty Electric
Vehicle (MHDEV) Policies in New York City and
Atlanta

Sarav Arunachalam

DOGWOOD ROOM

Emissions Inventories, Models, and Processes

Chaired by Jeff Vukovich (EPA) and Prof. Hosein Foroutan (Virginia Tech)

11:30 AM

A Review of Emissions Modeling Platforms for
the Years 2016 through 2019

Alison Eyth

11:50 AM

Applying satellite data assimilation to infer
lightning-NOx emissions in CMAQ

James D. East

12:10 PM

Improving Estimates of Wind-Blown Dust
from Natural and Agricultural Sources

Pradeepa Vennam

12:30 PM

Lunch

Tribute to Dr. S.T. Rao, Former Director of Atmospheric Modeling and
Analysis Division, U.S. EPA ORD, by Dr. Christian Hogrefe

GRUMMAN AUDITORIUM

Regulatory Modeling & SIP Applications

Chaired by Dr. Byeong Kim (GA EPD) and Prof. Will Vizuete (UNC)

1:45 PM

Ozone Sensitivity Analysis to NOx and VOC
Emissions and the Impact of International
Anthropogenic Emissions in Maricopa County

Rene Nsanzineza

2:05 PM

Sensitivity of Ozone to Emissions Changes in
the Great Lakes Region

M. Talat Odman

DOGWOOD ROOM

Emissions Inventories, Models, and Processes

Chaired by Jeff Vukovich (EPA) and Prof. Hosein Foroutan (Virginia Tech)

1:45 PM

Modeling agricultural reactive nitrogen
emissions with soil carbon amendments using
an enhanced version of Fertilizer Emissions
Scenario Tool for CMAQ (FEST-C)

Lina Luo

2:05 PM

Comparing the OH-reactivity of VOCs in three
major chemical mechanisms and its impact on
O3 and NO2

Siqi Ma

10 | AGENDA

DAY 2 | October 18, 2022

GRUMMAN AUDITORIUM

Regulatory Modeling & SIP Applications

Chaired by Dr. Byeong Kim (GA EPD) and Prof. Will Vizuite (UNC)

2:25 PM

Estimating Mexican EGU Impacts on Ozone in El Paso with SCICHEM

Matthew J. Alvarado

2:45 PM

Predicted impacts of heterogeneous chemical pathways on particulate sulfur in Fairbanks, Alaska

Sara Farrell

3:05 PM

Break

3:35 PM

Sensitivity of Ozone to Emission Reductions in New York City

Naresh Kumar

3:55 PM

Modeling Summertime O₃ Formation in the Salt Lake Valley: Model Performance and Sensitivity Analyses

Nancy Daher

4:15 PM

On the sensitivities driving predictions from Per- and polyfluoroalkyl substance (PFAS) chemical transport modeling

Emma L. D'Ambro

4:35 PM

Poster Introductions

Modeling to Support Exposure and Health Studies and Community-scale Applications

DOGWOOD ROOM

Wildfire Emissions & Air Quality

Chaired by Dr. Talat Odman (Georgia Tech) and Dr. Tesh Rao (Georgia Tech)

2:25 PM

Comparisons of Air Quality Models for Prescribed Burning Simulations at a Military Base in Southeastern United States

Zongrun Li

2:45 PM

Comparison of Global Fire Emission Inventories and Development of a New Python-based Fire Emission Inventory Processor

Jeremiah Johnson

3:35 PM

A scenario analysis of climate-driven changes in wildland fire smoke in the Southeastern U.S.

Megan M. Johnson

3:55 PM

Prescribed Fire Emissions and their Impacts on PM_{2.5} in Southeastern United States

Kamal Jyoti Maji

4:15 PM

Wildfire-caused Exceedances of Critical Loads of Nitrogen Deposition at Class I Areas

Krish Vijayaraghavan

4:35 PM

Poster Introductions

Emissions Inventories, Models, and Processes

5:00 PM

Reception and Poster Session

Atrium

7:00 PM

Adjourn

Emissions Inventories, Models, and Processes

Quantifying the Impact of Mobile-Source
Reactive Organic Carbon Emissions on U.S. Air
Quality

Ben Murphy

Offline speciation framework for mobile
emissions in MOVES

Claudia Toro

Whats New in SPECIATE v5.2?

Venkatesh Rao (and other co-authors)

Improvements to Oil and Gas Emissions
Modeling in the Uinta Basin, Utah

Lexie Wilson

Modeling to Support Exposure, Health Studies & Community-scale Applications

Analysis of Global Environmental Health
Inequality Using the Adjoint of Hemispheric
CMAQ

Amir Hakami

Dispersion Modeling for Aircraft Sources: Is
Area or Volume the appropriate Source
Characterization?

Gavendra Pandey

Using AERMOD to develop dispersion factor
tables for air toxics risk screening

Ambrish Sharma

Using big data analytics to improve mobile
source emission estimation

Md Hasibul Hasan

Investigating environmental inequality trends
in air pollution exposure by race/ethnicity

Britney Russell

Wildfire Emissions & Air Quality

Hazardous Air Pollutants in Wildfire Smoke across
the Western U.S., 2006-2020

R. Byron Rice

Development of PM_{2.5} transport: Modeling
the spatial distribution of Camp Fire from
California to New York

Xiaorong Shan

Understanding the contributions of different
types of biomass combustion to ambient
PM_{2.5} and ozone in the United States using
CMAQv5.3.3

Jiaoyan (Joey) Huang

12 ► AGENDA

DAY 3 | October 19, 2022

7:30 AM

Registration and Continental Breakfast

8:00 AM

A/V Upload

GRUMMAN AUDITORIUM

Model Development

Chaired by Dr. Havalá Pye (EPA) and Prof. Yang Zhang (Northeastern University)

DOGWOOD ROOM

Remote Sensing/Sensor Technology Machine Learning

Chaired by James Szykman (EPA) and Dr. Matthew Alvarado (Verisk AER)

9:00 AM

Development and Evaluation of An Advanced
Ozone Dry Deposition Model

Kiran Alapaty

9:00 AM

Air quality impacts of increased port activity
in Los Angeles, CA investigated using satellite
retrievals & chemical transport modelling

Nash Skipper

9:20 AM

Development of JEDI Based AIRNow and AOD
Assimilations Capabilities to Improve RRFS-
CMAQ Predictions

Youhua Tang

9:20 AM

Evaluation of global IASI-GOME2 observations
of lowermost tropospheric ozone as a
predictor of ground-level ozone concentration

Hantao Wang

9:40 AM

Simulations of IEPOX Chemistry Using
Laboratory Results and FOAM-CMAQ Model
with ISORROPIA and AIOMFAC
Thermodynamic Model Integration

Jaime R. Green

9:40 AM

Introducing Geostationary Lightning Mapper
Nitrogen Oxides (GLM-NO_x) Emissions
Processor and its Application in 2019 Air
Quality Simulations

Arastoo Pour Biazar

10:00 AM

Impacts of the halogen chemistry and CB6
chemical mechanism updates on air quality

Golam Sarwar

10:00 AM

Using NWS Radars to Constrain Planetary
Boundary Layer Height Simulations

Matthew Alvarado

10:20 AM

Development and application of the
Community Regional Atmospheric Chemistry
Multiphase Mechanism (CRACMM) version 1.0

Havalá Pye

10:20 AM

MTropospheric Emissions: Monitoring of
Pollution (TEMPO) mission and Level 2 Data
Product Validation Plans

James Szykman

10:40 AM

Break

11:10 AM

Resolving the effect of roadside green
infrastructure on near-road air quality in a
multi-regime modeling framework

Richard W. Baldauf

11:10 AM

Improving the Computational Performance
of Air Quality Models with Machine Learning
Tools

Tony Wexler (Invited Speaker)

11:30 AM

The WUDAPT approach to multi-scale
intra-urban atmospheric modeling and
analyses applications

Jason Ching

GRUMMAN AUDITORIUM**Model Development**

Chaired by Dr. Havala Pye (EPA) and Prof. Yang Zhang (Northeastern University)

11:50 AM

Updates on VERDIs New Functionality and Development

Daiwen Kang

DOGWOOD ROOM**Remote Sensing/Sensor Technology
Machine Learning**

Chaired by James Szykman (EPA) and Dr. Matthew Alvarado (Verisk AER)

11:50 AM

A Machine Learning Approach to Quantify the Impact of Meteorology on Tropospheric Ozone in the Inland Empire, CA

Khanh Do

12:10 PM

Lunch

GRUMMAN AUDITORIUM**Model Development**

Chaired by Dr. Havala Pye (EPA) and Prof. Yang Zhang (Northeastern University)

1:10 PM

The Impact of Altering Emission Data Precision on the Community Multiscale Air Quality Model

David Wong

1:30 PM

GPU-Assisted CMAQ Simulations

Khanh Do

1:50 PM

CMAQ 5.3 PARALLEL PERFORMANCE FOR Q4 2016

George Delic

2:10 PM

Evaluating and Comparing the Effects of WRF Setup Variables

Corey Smithson

2:30 PM

CMAQv5.3-hyd: a novel model to compute numerically exact first- and second-order

DOGWOOD ROOM**Cloud Computing**

Chaired by Zac Adelman (LADCO) and Dr. Steven Fine (EPA)

1:10 PM

Performance Optimization of the Community Multiscale Air Quality (CMAQ) model on Microsoft Azure

Steve Roach

1:30 PM

Community Multiscale Air Quality (CMAQ) Modeling and Analysis on the Cloud

Christos Efstathiou

1:50 PM

Scaling NWP workloads on AWS to achieve your research goals

Timothy Brown

2:10 PM

Use of NOAA's Global Forecast System Data in the Cloud for Community Air Quality Modeling

Patrick Campbell

2:30 PM

Open-innovation and Open-development Framework for the Unified Forecast system - An EPIC Approach

Maoyi Huang

2:50 PM

Break

AGENDA

DAY 3 | October 19, 2022

GRUMMAN AUDITORIUM

Model Development

Chaired by Dr. Havalá Pye (EPA) and Prof. Yang Zhang
(Northeastern University)

3:20 PM

Spray aerosol emissions parameterizations in
the CMAQ modeling system

Hosein Foroutan

3:40 PM

Use of Isotopic Analysis and CMAQ Modeling
to Categorize Dust Emission Sources in Utah

Bradley Adams

4:00 PM

Development and Evaluation of an Advanced
Aerosol Dry Deposition Model

Bin Cheng

DOGWOOD ROOM

Cloud Computing

Chaired by Zac Adelman (LADCO) and Dr. Steven
Fine (EPA)

3:20 PM

CMAQ in the Cloud - Tutorials with Q&A

Liz Adams and Christos Efstathiou

4:30 PM

Adjourn

15 | ► IMPORTANT LINKS

Feedback Form

<https://forms.gle/MCg11xwCQST79u929>



CMAQ

<https://www.cmascenter.org/cmaq/>



Twitter

https://twitter.com/CMAS_Center



SMOKE

<https://www.cmascenter.org/smoke/>



LinkedIn

<https://www.linkedin.com/company/cmas-center/>



AMET

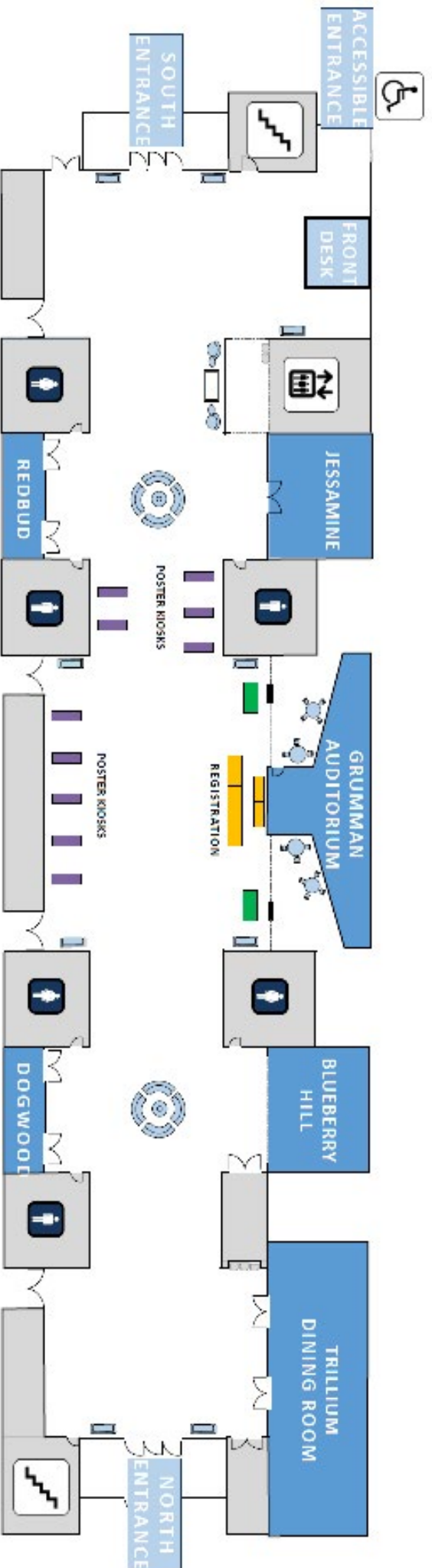
<https://www.epa.gov/cmaq/atmospheric-model-evaluation-tool>



VERDI

<https://www.cmascenter.org/verdi/>





CMAS 2022
October 17-19, 2022

FRIDAY
CONFERENCE CENTER

