



Photo credit: The San Gabriel Mountains | Steve Berardi

Meteorology And Climate Modeling for Air Quality

(MAC-MAQ)

September 16~18 2015

**Embassy Suites Riverfront Promenade -
Old Sacramento**

Sponsored by
Air Quality Research Center, UC Davis
California Air Resources Board

PROGRAM

WEDNESDAY, SEPTEMBER 16

- 9 **WELCOME & INTRODUCTIONS**
Jon Pleim, *U.S. EPA*, John Edwards, *UK Met Office*, Donna Reid, *UC Davis* & Jeremy Avise, *CARB*
- 9:15 **PLENARY TALK**
Air Quality Modeling for Exposure Analysis Armistead G. Russell, *Georgia Tech*
- 10 **BREAK**
- SESSION 1- Dynamical Modeling of Processes Across Scales**
Session Chairs: Dick McNider, *University of Alabama Huntsville* and Paul Ullrich, *UC Davis*
- 10:30 Treatment of Sub-Grid Scale Plumes in Regional-Scale Models
Prakash Karamchandani, *ENVIRON*
- 10:45 Global Multi-Resolution Chemistry Simulations with the EPA's CMAQ Modeling System
Martin Otte, *U.S. EPA*
- 11 Scale Issues in Air Quality Modeling
S.T. Rao, *North Carolina State University*
- 11:15 Variable Resolution Global Modeling with a Cut-Cell Alternative to Terrain-Following Coordinates: Applications and Improvement of OLAM
Bob Walko, *University of Miami*
- 11:30 Blurring the Separation Between Weather and Climate Scales with Variable-Resolution Global Modeling
Colin Zarzycki, *NCAR*
- 12 **LUNCH**
- 1 A Non-Hydrostatic Global Atmospheric Model with a Cubed- Sphere Grid for Weather Prediction
Song-You Hong, *Korea Institute of Atmospheric Prediction Systems (KIAPS)*
- 1:15 Reaching High Spatial Resolutions with Regionally Refined Global Climate Models
Paul Ullrich, *UC Davis*
- SESSION 2 - Complex Terrain Effects**
Session Chair: Tina Katopodes Chow, *UC Berkeley*
- 1:30 Uncertainties in Meteorological Predictions in Areas of Complex Terrain and Their Impact on Air Quality
Jerome Fast, *PNNL*
- 1:45 Model Development in WRF for Large-Eddy Simulations
Katherine Lundquist, *LLNL*
- 2 Microscale Measurement and Modeling Challenges and Opportunities in Regions of Urban and Complex Terrain
Eric Pardyjak, *University of Utah*
- 2:15 Numerical Simulations of Turbulent Flow and Dispersion Over Urban and Complex Terrain by Coupling WRF and LES Models
Tetsuya Takemi, *Kyoto University*
- 2:30 Improvement on Short-Term Low-Level Wind Forecasts Over Complex Terrain
Chih-Ying Chen, *UC Davis*
- 2:45 Fine Resolution WRF and CMAQ Simulations of Bay/Sea Breeze Events Observed During NASA DISCOVER-AQ Airborne Missions
Ken Pickering, *NASA*

3 **Great Lakes Air Quality**
Charles Stanier, *University of Iowa*

3:15 **BREAK**

SESSION 3 - Convective and Stable BL Parameterizations and Grey-Zone Turbulence Issues

Session Chair: **John Edwards**, *UK Met Office*

3:30 **Modelling the Boundary Layer at Grey-Zone Resolutions**
Bob Beare, *University of Exeter*

3:45 **Toward Multiscale Simulations of Atmospheric Boundary Layer Flows**
Branko Kosovic, *NCAR*

4 **A New Unified Stochastic Parameterization for Boundary Layer, Shallow Convection and Transition to Deep Convection**
Kay Suselj, *JPL*

4:15 **Grey-Zone Simulations of the Morning Convective Boundary Layer Growth**
George Efstathiou, *University of Exeter*

4:30 **Current Forecasting Issues in the Nocturnal Boundary Layer**
John M. Edwards, *Met Office, UK*

5-7 **RECEPTION & POSTER VIEWING**

THURSDAY, SEPTEMBER 17

SESSION 4 - Land-Surface Processes and Urbanization

Session Chair: **Jon Pleim**, *U.S. EPA*

8 **Urban Features and Air Quality Forecast for the Megacity of São Paulo, Brazil**
Edmilson Freitas, *University of São Paulo*

8:15 **Urban Model Complexities**
Sue Grimmond, *University of Reading*

8:30 **Anthropogenic Heat: The Importance of Scale and Spatial Variability**
David Sailor, *Portland State University*

8:45 **Constraining Land Surface Parameters Using Satellite Observations**
Richard T. McNider, *University of Alabama, Huntsville*

9 **Subkm-Scale Urban Modeling for the Greater Toronto Area**
Stephane Belair, *Environment Canada*

9:15 **BREAK**

SESSION 5 - Cutting Edge Approaches to Coupled and Integrated Modeling

Session Chair: **Saulo Freitas**, *CPTEC, Brazil and NOAA*

9:30 **How Important Are Online Meteorology-Chemistry Coupling and Aerosol Feedbacks for Predicting the Physical and Chemical Systems?**
Alexander Baklanov, *World Met Org*

9:45 **Desired Properties of Transport Schemes for Coupled Atmospheric-Chemistry Models**
Peter Lauritzen, *NCAR*

10 **Modeling Radiative Effects of Biomass Burning Aerosols on CO₂ Biogenic Fluxes in the Amazon Region**
Demerval Soares Moreira, *Universidade de São Paulo*

10:15 **Influence of 2010 Canadian Forest Fires on Radiation, Temperature and Precipitation Patterns**
Carolin Walter, *Karlsruhe Institute of Technology*

10:30 **BREAK**

SESSION 6 - Aerosol Direct & Indirect Feedbacks and Aerosol Aware Microphysics

Session Chair: **Bernhard Vogel**, *Karlsruhe Institute of Technology*

- 10:45** **Effects of Cloud Condensation Nuclei (CCN) and Ice Nuclei (IN) on Warm and Cold Mixed-Phase Orographic Clouds and Precipitation in California**
Jiwen Fan, *PNNL*
- 11** **Modeling the Effects of Dust-Radiative Forcing on the Movement of Hurricane Helene**
Shu-Hua Chen, *UC Davis*
- 11:15** **Ship Tracks - A Framework for ACI Evaluation in Warm-Phase Stratocumulus**
Anna Possner, *ETH Zurich*
- 11:30** **Estimating Emissions Influences on the Aerosol Indirect Effect**
Shannon Capps, *University of Colorado Boulder*
- 11:45** **Effects of Urban Plume Aerosols on a Mesoscale Convective System**
Stacey Kawecki, *University of Michigan*
- 12** **Impact of Mineral Dust Particles on the Forecast of Photovoltaic Power Production**
Bernhard Vogel, *Karlsruhe Institute of Technology*

12:15 **LUNCH**

SESSION 7- Model Evaluation Using Meteorological and Chemical Observations from Field Campaigns

Session Chair: **Ken Pickering**, *NASA Goddard / University of Maryland*

- 1:15** **Meteorology and Transport Model Evaluation with CalNEX and SENEX Observations**
Wayne Angevine, *CIRES, University of Colorado, and NOAA ESRL*
- 1:30** **Methods for Improving Fine-Scale Applications of the WRF-CMAQ Modeling System**
Wyat Appel, *U.S. EPA*
- 1:45** **Regional Model Evaluation During the NASA DISCOVER-AQ Campaigns**
Melanie Follette-Cook, *GESTAR/NASA GSFC*
- 2** **Evaluating High-Resolution WRF Simulations of PBL Depth Using Observations from DISCOVER-AQ 2011**
Jennifer Hegarty, *AER*
- 2:15** **Evaluation of NWS/NCEP Meteorological Models and Their Impact on Air Quality Prediction**
Jeff McQueen, *NOAA*
- 2:30** **Comparison of Seasonal Cycles of Tropospheric Ozone from Chemistry- Climate Models (CCMs) with Measurements**
David D. Parrish, *CIRES and NOAA ESRL CSD*
- 2:45** **High-Resolution Numerical Modeling of Meteorological Conditions and Associated Particulate Matter Vertical Distribution Over Complex Terrain in the Italian Alps**
Elena Tomasi, *University of Trento and CINFAI, Rome*

3 **BREAK**

SESSION 8 - Convective Parameterizations, Radiation, Stochastic Approaches, and Grey-Zone and Aerosol Interaction Issues

Session Chair: **Georg Grell**, *NOAA*

- 3:15** **Stochastic Physics Perturbation Methods**
Judith Berner, *NCAR*
- 3:30** **Cold Air Outbreak - On the Edge of the Greyzone**
Paul Field, *UK Met Office*
- 3:45** **Inclusion of Treatments of Cloud-Aerosol Interactions for Resolved and Parameterized Clouds and Their Evaluation Using Field Campaign Measurements**
Jerome Fast, *PNNL*

- 4 **A Scale- and Aerosol-Aware Convective Parameterization: Development and Applications**
Georg Grell, NOAA
SESSION 9 - Data Assimilation and Inverse Modeling
Session Chair: **Sarika Kulkarni, California Air Resources Board**
- 4:30 **Inverse Modelling for Emission Rate Estimation and Its Optimal Observation Network Design**
Hendrik Elbern, University of Cologne / FZ Jülich
- 4:45 **Evaluate and Constrain Modeled Ozone and Its Source Contributions in the Western U.S. Using Satellite Trace Gas Observations**
Min Huang, George Mason University

FRIDAY, SEPTEMBER 18

SESSION 9 - Data Assimilation and Inverse Modeling (cont.)

- 8 **Real Time Aerosol Forecasting and Data Assimilation in the USA**
Mariusz Pagowski, NOAA
- 8:15 **An Ensemble-Based Data Assimilation System for Reactive Trace Gases: Application to NO₂ from OMI and TEMPO**
Xueling Liu, University of California, Berkeley
- 8:30 **Improving Black Carbon Emission Inventories During ARCTAS-CARB Using Online Chemical 4D-Var in WRFDA-Chem**
Jonathan Guerrette, University of Colorado, Boulder

SESSION 10- Wildfire and Prescribed Burn Processes and Effects

Session Chair: **Susan O'Neill, U.S. Forest Service**

- 8:45 **Incorporation of Fire Emissions in the AIRPACT Air Quality System for the Pacific Northwest**
Serena Chung, Washington State University
- 9 **Modeling the Air Quality Impacts of Prescribed Burns: Sensitivities to Emissions and Meteorology**
Talat Odman, Georgia Tech
- 9:15 **Smoke Modeling for Prescribed Fires and Wildfire Incidents**
Susan O'Neill, U.S. Forest Service
- 9:30 **Fire Radiative Product: Simulation and Use in Plume Injection Profile Parametrization**
Ronan Paugam, King's College London
- 9:45 **Fire Behavior and Fire Plumes**
Brian Potter, U.S. Forest Service
- 10 **Statistical and Stochastic Model Applications for Projecting Wildfire Impacts on Southeastern U.S. Air Quality**
Uma Shankar, The University of North Carolina
- 10:15 **A Study of the Influence of Forest Canopy Characteristics on Fire-Atmosphere Interactions**
Michael T. Kiefer, Michigan State University

10:30 **BREAK**

SESSION 11 - Atmospheric Transport and Dispersion Modeling

Session Chair: **Brad Pierce, NOAA**

- 10:45 **Urban Wind Flow, Turbulence, and Dispersion Modeling**
Steven Hanna, Hanna Consulting
- 11 **Roles of Climate Variability on Western US Ozone Air Quality: Decadal Changes, Extremes, and Policy Implications**
Meiyun Lin, Princeton University / NOAA GFDL

- 11:15 **Nested Global and Regional Scale Modeling of the Impacts of Intercontinental Pollution Transport and Stratospheric Intrusion on Surface Air Quality in the Western U.S.**
Brad Pierce, NOAA
- 11:30 **Lagrangian Particle Modeling of Dispersion and Concentration Statistics in the Atmospheric Boundary Layer**
Jeff Weil, University of Colorado and NCAR
- 11:45 **Impact of WRF PBL Schemes on Boundary-Layer Simulations Using Lidar, Modelling, and Observations During Spring 2015: Towards Improvement of an Air Quality Forecast System**
Robert F. Banks, Polytechnic University of Catalonia
- 12 **LUNCH**
- 1 **PLENARY TALK**
The Importance of Meteorology in Regulatory Air Quality Modeling **Jeremy Avise, CARB**
- SESSION 12 - Ensemble Methods**
 Session Chair: **David Stauffer, The Penn State University**
- 1:45 **Retrospective Air Quality Ensemble Modeling Using Weather Forecast Ensembles and Grid Nudging**
Robert Gilliam, U.S. EPA
- 2 **Quantifying Inherent Uncertainty in the Prediction of Atmospheric Pollutant Concentrations: Variability Stemming from the Initial State**
Marina Astitha, University of Connecticut, Storrs
- 2:15 **A Sub-km-Grid Ensemble for Representing Mesogamma Hazard-Prediction Uncertainty in the Stable Boundary Layer Over Complex Terrain**
David Stauffer, The Penn State University
- 2:30 **Estimating Long-Lived Trace Gas Surface Fluxes with an Ensemble Kalman Filter**
Junjie Liu, JPL
- 2:45 **Probabilistic Predictions for Weather and Air Quality with an Analog Ensemble**
Luca Delle Monache, NCAR
- 3 **U.S. EPA WRF Ensemble of Regional Climate Change: An Emphasis on the Southeast U.S. for Future Air Quality**
Jared H. Bowden, UNC Chapel Hill
- 3:15 **Wrap-Up**

THANKS TO THE CALIFORNIA AIR RESOURCES BOARD FOR THEIR SUPPORT OF THIS CONFERENCE.



THE UC DAVIS AIR QUALITY RESEARCH CENTER
Anthony Wexler, Director

PRESENTER BIOS

WAYNE ANGEVINE, CIRES / NOAA ESRL

Wayne is a Research Scientist at NOAA's Earth System Research Laboratory where he conducts research in atmospheric physics with applications to air quality. His current emphasis is the use and evaluation of meteorological and Lagrangian transport models with emphasis on understanding uncertainty. He has been involved in the planning, execution, and analysis of numerous field projects including ROSE II, NARE, Flatland 95-97, NEAQS, ICARTT, TEXAQS 2000 and 2006, CalNex, SENEX, and BLLAST. As an atmospheric scientist, Wayne has contributed to radar wind profiler techniques, meteorological modeling, parameterization development, and boundary layer studies. He received his PhD in Electrical Engineering from the University of Colorado in 1993 after a first career in engineering.

wayne.m.angevine@noaa.gov

WYAT APPEL, U.S. EPA

Wyat is a Physical Scientist in the Atmospheric Modeling and Analysis Division at the National Exposure Research Laboratory of U.S. EPA in Research Triangle Park. Prior to joining EPA, he served as a Meteorologist for the North Carolina Division of Air Quality in Raleigh. Wyatt has a BS Meteorology and an MS in Atmospheric Science, from North Carolina State University.

appel.wyat@epa.gov

MARINA ASTITHA, University of Connecticut, Storrs

Marina has been leading the Atmospheric Modeling and Air Quality Group at the Department of Civil and Environmental Engineering at the University of Connecticut since August 2013. The group consists of 4 graduate students and conducts research on the predictability of extreme weather events for the northeast U.S.; the impact of anthropogenic activities in altering the climate (aerosol-cloud-radiation interactions); and the uncertainties associated with numerical modeling of meteorological and air pollution processes. Marina teaches Environmental Modeling and Hydrometeorology and has 12 years of experience in atmospheric and air quality modeling systems from regional to global scales. She has worked on developing parameterization schemes and improving the representation of physical and chemical processes in the modeling systems to address significant scientific questions (i.e. heterogeneous formation of atmospheric sulfates and nitrates, desert dust particles life cycle, effects of meteorology on the long-range transport of pollutants, direct and indirect effects of aerosols on climate, improved prediction of extreme weather events). She has 17 publications, 65 conference presentations, and is currently a co-principal Investigator in 2 funded research projects. Marina serves as a reviewer in international peer-review journals such as Atmospheric Chemistry and Physics, Journal of Geophysical Research, Journal of the Air and Waste Management Association, among others. She holds a BSc in Physics, and an MS and PhD in Environmental Physics from the University of Athens.

astitha@engr.uconn.edu

JEREMY AVISE, California Air Resources Board

Jeremy is the Manager of the Regional Air Quality Modeling Section of the Air Quality Planning and Science Division at the California Air Resources Board and an Adjunct Professor in Civil and Environmental Engineering at the Laboratory for Atmospheric Research at Washington State University. He oversees work in regulatory air quality modeling; chemical mechanism development; PM 2.5 formation in California; NOx/VOC sensitivity of ozone production in California; wildfire impacts on air quality; background ozone; long-range transport of pollutants; SOM application in CMAQ; climate change impacts on air quality; modeling support for field studies; WRF model evaluation and improvements; application of model probing tools in CMAQ; and emissions inventory development for natural sources. Jeremy holds a BS in Physics and a BS in Mathematics from the University of Puget Sound, an MS in Environmental Engineering from the University of Montana, and a PhD in Civil and Environmental Engineering from Washington State University.

jeremy.avise@arb.ca.gov

ALEXANDER BAKLANOV, World Meteorological Organization

Alexander is a Scientific Officer at the World Meteorological Organization (WMO) on leave from the Danish Meteorological Institute (DMI) and an Adjoint Professor at the Niels Bohr Institute at the University of Copenhagen. He is also currently the Editor-in-chief of the journal *Urban Climate*. Alexander has more than 30 years of experience in environmental and atmospheric research, in particular in developing a new generation of online, coupled meteorology-chemistry models. He has published about 400 scientific publications, including 14 books and almost 200 peer-reviewed papers, and has led many international research projects and supervised 10 PhD

students. He has been a visiting/adjoint/honour professor in four European universities, and an organiser of several international scientific conferences and young scientist summer schools. Alexander holds a MSc in Physics from Novosibirsk State University, a PhD in Physics & Mathematics (Geophysics) from the USSR Academy of Sciences, and a Dr. Sci. in Physics & Mathematics (Meteorology and Climatology) from the Russian State Hydrometeorological University, St. Petersburg.

abaklanov@wmo.int

ROBERT BANKS, *Polytechnic University of Catalonia*

Robert Banks is a U.S. career-service civilian government employee with past positions at the National Weather Service (NWS) and National Ocean Service (NOS); both line offices of the National Oceanic and Atmospheric Administration (NOAA). Currently he is in the final year of a doctoral degree program in environmental engineering at the Polytechnic University of Catalonia, Spain. The focus of his PhD project is utilizing remote sensing (lidar, satellites) to evaluate air quality models over Europe. Robert is one of eleven early-stage researchers in the European Union-funded Initial Training for Atmospheric Remote Sensing network.

(<http://www.itars.net>) His research interests include planetary boundary-layer dynamics, air quality modelling, remote sensing of land and oceans, air-sea interactions, and marine meteorology; including extreme wind and wave events. Previously, Robert worked as a Meteorologist - Marine Forecaster at the NWS Ocean Prediction Center (OPC) in College Park, MD. OPC is responsible for marine weather forecasts, analyses, and warnings for large portions of the North Atlantic and North Pacific Oceans. While at NOAA, temporary assignments included cross-training at the National Hurricane Center in Miami, Florida and a NOAA rotational assignment at the U.S. Integrated Ocean Observing Systems (IOOS) program office in Silver Spring, MD.

robert.banks@bsc.es

RONALD L. BASKETT, *Lawrence Livermore National Laboratory*

Ron is the Deputy Division Leader for Operations in the Atmospheric, Earth and Energy Division at Lawrence Livermore National Laboratory where he oversees and supports 120 research scientists. His career has focused on how measurements and models can solve problems associated with atmospheric releases. Ron began working at Lawrence Livermore National Laboratory in the National Atmospheric Release Advisory Center, a federal resource for producing real-time estimates of the consequences from hazardous material releases to the atmosphere. He led responses to over 100 real-world incidents supporting over 250 local, state, and federal agencies nationwide. Ron also was the Principal Investigator for several projects including supporting NASA's interplanetary space launches with radioisotope thermoelectric generators. His research interests include atmospheric dispersion modeling, tracer studies, model evaluation, mesoscale forecasting, boundary layer meteorology, and meteorological and remote sensing. Ron started his career in satellite meteorology at the Johnson Space Center. Then as an air quality consultant in Denver and Southern California he managed over two dozen projects modeling industrial development. Ron serves on the Board of AMS Certified Consulting Meteorologists. He has an MS in Atmospheric Science from UC Davis where he worked on regional transport of air pollution from urban areas into the Yosemite Valley.

baskett1@llnl.gov

BOB BEARE, *University of Exeter*

Bob is a Senior Lecturer at CEMPS at the University of Exeter. His current research involves modelling the atmospheric boundary layer and its interaction with weather systems to improve weather and climate predictions, air pollution modelling and wind energy. He is also interested in high-resolution numerical weather prediction; using balance to test parametrization schemes in weather and climate models: pollution dispersion in evening boundary layers; and Antarctic boundary layers. Prior to coming to Exeter, Bob worked for the Met Office. Bob has a BS in Physics from Oxford University and a PhD in Meteorology from the University of Reading.

R.J.Beare@exeter.ac.uk

STEPHANE BELAIR, *Environment Canada*

Stephane has been a Research Scientist in the Meteorological Research Division of Environment Canada since 1997, working on improving the representation of physical processes in local, regional, and global numerical prediction weather systems. His work focuses on clouds, precipitation, boundary-layer turbulence, and land surface processes. Stephane was the scientific leader of several major operational implementations at the Meteorological Service of Canada, including the global modeling group of the Numerical Prediction Section from 2001 to 2006, and since then leading the land surface modeling and assimilation group. He is also member of several international committees and initiatives; the Science Definition Team of NASA's Soil Moisture Active and Passive (SMAP) mission, and the Working Group on Mesoscale Weather Forecasting of the World Weather

Research Program. Stephane has a BS in Physics Engineering from the Ecole Polytechnique de Montreal and a PhD in Atmospheric Sciences from McGill University.

stephane.belair@ec.gc.ca

JUDITH BERNER, NCAR

Judith is a Scientist at the National Center for Atmospheric Research with a joint appointment in the Mesoscale and Microscale Meteorology Division and the Climate and Global Dynamics Division. Her interests are model uncertainty and model error in weather and climate models and their representations and in particular stochastic parameterizations such as the stochastic kinetic-energy backscatter scheme and their impacts on systematic model error and model variability. Prior to joining NCAR, Judith was a Scientific Consultant for Stochastic Physics at the European Centre for Medium-Range Weather Forecasts in Reading, UK. Judith has a Diploma in Meteorology with distinction and a PhD in Meteorology from the Meteorological Institute, University of Bonn.

berner@ucar.edu

JARED H. BOWDEN, UNC Chapel Hill

Jared is a Research Assistant Professor at the Center for Environmental Modeling for Policy Development at UNC-Chapel Hill. He is an experienced investigator using regional climate and limited area meteorological models. He worked as a postdoctoral research associate with the U.S. EPA playing a key role in developing in-house dynamical downscaling of coupled earth system models using the WRF model for regional climate change projections. Jared has helped to understand the value of interior grid nudging for regional climate models. With a numerical modeling background, foundation in climate dynamics/oceanography, and experience with model evaluation at regional and global scales, his interest is to help understand the various processes that are important for modeling climate variability and change from regional to local scales. Jared's research interests also include applying regional climate change projections for climate change adaptation and mitigation, and meteorological modeling experience for air quality modeling. He holds a BS in Marine Science; a BS in Meteorology; and an MS and PhD in Atmospheric Science; all from North Carolina State University, Raleigh.

jhbowden@unc.edu

SHANNON CAPPS, University of Colorado Boulder

Shannon is a Post-Doctoral Researcher at the University of Colorado, Boulder where she works on evaluating the impact of energy production methods on regional air quality; assessing the impact of emissions on clouds and their radiative impacts; and investigating current representations of ammonia concentrations in the continental US. As the developer of the adjoint of ISORROPIA, Shannon is an integral part of the CMAQ adjoint development team and contributor to the GEOS-Chem adjoint. Shannon holds a BE with honors in ChE from Vanderbilt University and was the recipient of an NSF Graduate Research Fellowship and NASA Earth System Science Fellowship. She received her ChBE PhD at the Georgia Institute of Technology in the Nenes and Russell research groups. The focus of her thesis was the advancement of direct sensitivity analysis tools for regional to global chemical transport models.

shannon.capps@colorado.edu

JIANGYUE CHAO, The University of Hong Kong

Jiangyue is a researcher in the Department of Mechanical Engineering at the University of Hong Kong where she works on pollutant plume dispersion and in particular air pollution dispersion in a wake after a moving vehicle tailpipe. She has also worked on calculating contaminant transport in airliner cabins. Jiangyue has a BSc and MSc in Heating, Ventilating and Air Conditioning Engineering from Tianjin University.

jychaome@connect.hku.hk

CHIH-YING (DAVID) CHEN, UC Davis

David is a Post-Doc in the Mesoscale Meteorology Group of Shu-Hua Chen at UC Davis where he works on short-term low-level wind forecasts over complex terrain.

cycch@ucdavis.edu

SHU-HUA CHEN, UC Davis

Shu-Hua is an Assistant Professor of Meteorology and Assistant Meteorologist in the Department of Land, Air and Water Resources at the University of California, Davis. Her current research interests are regional climate, air pollution, model development, severe weather, cumulus parameterization, data assimilation and numerical schemes. Shu-Hua holds a BS in Atmospheric Sciences from National Taiwan University, and an MS and PhD in Earth and Atmospheric Sciences from Purdue.

shachen@ucdavis.edu

FOTINI (TINA) KATOPODES CHOW, *UC Berkeley*

Tina is an Associate Professor in Civil and Environmental Engineering at the University of California, Berkeley. Her current research interests are in performing large-eddy simulations of atmospheric boundary layer flows, with a focus on flow over complex terrain and development and testing of new turbulence models and boundary conditions. She and her students have worked on applications to mountain meteorology, urban dispersion, wind energy, and land-atmosphere coupling, among others. Last year she co-edited the book Mountain Weather Research and Forecasting: Recent Progress and Current Challenges. Tina holds a BS in Engineering Sciences from Harvard and a MS and PhD in Civil and Environmental Engineering from Stanford.

tinakc@berkeley.edu

SERENA CHUNG, *Washington State University*

Serena is an Associate Research Professor in the Laboratory for Atmospheric Research at Washington State University. Her research focuses on developing, improving, and applying models to better understand the physical and chemical processes that affect air quality and chemistry-radiation-climate interactions. Serena has been involved in the development and operation of the AIRPACT regional air quality forecasting system for the Pacific Northwest. She received a BS in Chemical Engineering from the University of Illinois at Urbana Champaign and a MS and PhD in Chemical Engineering from the California Institute of Technology.

serena_chung@wsu.edu

LUCA DELLE MONACHE, *NCAR*

Luca Delle Monache is a scientist with the National Center for Atmospheric Research in Boulder. His main interests include the predictability of the boundary layer and its constituents, the design of ensemble prediction systems, data assimilation, probabilistic predictions, uncertainty quantification, inverse problems, renewable energy, and numerical weather / air quality / dispersion predictions. Before joining NCAR, Luca worked at the Lawrence Livermore National Laboratory. He holds a Laurea (MS) in Mathematics from the University of Rome, an MS in Meteorology from San Jose State University, and a PhD in Atmospheric Sciences from the University of British Columbia.

lucadm@ucar.edu

JOHN EDWARDS, *Met Office, UK*

John is a Research Scientist working to improve the representation of surface processes in numerical forecasting models, with a particular interest in the surface layer. He uses observational data and process models to form a detailed picture of processes in the surface layer and to identify areas for improvement in current forecasting models. A major theme in his current work is understanding the variation of temperature near the surface, particularly in light winds and conditions of strong surface cooling. This has led to a developing interest in the use of land surface temperatures retrieved from satellites to assess the performance of operational models. John holds a PhD in astrophysical fluid dynamics from the University of Cambridge, where he also received his first degree in Mathematics.

john.m.edwards@metoffice.gov.uk

GEORGE EFSTATHIOU, *University of Exeter*

George joined the University of Exeter as an Associate Research Fellow in 2013 where he works on the GREYBLS (Modelling GREY - zone Boundary LayerS) project with Bob Beare and John Thurnburn, in collaboration with the Department of Meteorology, University of Reading and the UK Met Office. The aim of the project is to improve understanding of the interaction of numerical methods and sub-grid models in the grey-zone in order to develop a new parameterization for the MetUM. His current research interests include: high-resolution numerical weather prediction; large eddy simulation of atmospheric flows; boundary layer and mesoscale meteorology; dynamic meteorology; heavy rainfall events; severe weather; and interaction of turbulent transport with the synoptic environment. George has a PhD in Atmospheric Sciences and Meteorology from University of Ioannina and a MSc in Atmospheric Physics from the Aristotle University of Thessaloniki.

g.efstathiou@exeter.ac.uk

HENDRIK ELBERN, *University of Cologne and Forschungszentrum Jülich*

Hendrik is currently a Senior Scientist and head of an inverse modelling research group at the Rhenish Institute for Environmental Research (RIU) at the University of Cologne and also affiliated with the Institute for Energy and Climate Research (IEK 8, troposphere) at the research centre Jülich. He has been a guest scientist at various institutions, including the Laboratoire de Meteorologie Dynamique at the Ecole Normale Supérieure, Paris. His special research areas include atmospheric chemistry data assimilation and inverse problems in the atmosphere and soils; parallel computing and numerical solution of atmospheric transport- diffusion- reaction

equations; and dynamics of stratospheric-tropospheric exchange. He has acted as PI for several national, European Space Agency and European Community funded projects, mostly in the realm of data assimilation for COPERNICUS earth observation activities, introducing space-time variational techniques novel to complex atmospheric chemistry models. He has coordinated consortia of nationally funded projects, addressing tropospheric and stratospheric chemistry data assimilation techniques. He is also engaged in scientific education at the University of Cologne for meteorology; lecturing and supervising PhD students in his research group. Hendrik holds a PhD in Meteorology from the University of Cologne.

he@eurad.uni-koeln.de

IAN C. FALOONA, UC Davis

Ian is an Associate Professor in the Department of Land Air and Water Resources at UC Davis. His main research interests are: airborne measurements; micrometeorology; atmospheric chemistry; mountain/marine meteorology; and biogeochemistry. His research group investigates how trace gas emissions in marine and terrestrial boundary layers mix, disperse, and ultimately influence the Earth's climate. Prior to coming to Davis, Ian was a postdoctoral researcher at the National Center for Atmospheric Research in Boulder. He also spent 4 years in Colorado working as an environmental consultant, measuring smoke stack emissions and operating computer models. Ian first studied chemistry at UC Santa Cruz, particularly attracted to quantum mechanics and molecular dynamics. He spent two summers in the 'detonation theory and applications' group at Los Alamos National Laboratory which introduced him to the beauties of scientific research and the Southwestern U.S. Ian has a BA in Chemistry from the UC Santa Cruz and a PhD in Meteorology from The Pennsylvania State University where he studied atmospheric photochemistry from airplanes and towers.

icfaloona@ucdavis.edu

JIWEN FAN, PNNL

Jiwen is a Senior Research Scientist at Pacific Northwest National Laboratory, and an Adjunct Professor at the State University of New York (SUNY) at Albany. She has a wide range of research experience and interests, varying from atmospheric chemistry and aerosols, to cloud physics and parameterizations. Her primary expertise is on the physical understanding of aerosol-cloud interactions focusing on deep convective clouds and mixed-phase stratiform clouds. She has also been working on ice nucleation parameterization, and scale-aware physical parameterizations for regional and climate models. Jiwen has many publications and citations and has won several prestigious research awards including the 2015 AGU ASCENT award for mid-career, and PNNL's Ronald L. Brodzinski Award for early career exceptional achievements. She is the Chair of the AMS Atmospheric Chemistry Committee and has been organizing a series of symposia on aerosol-cloud-climate interactions at the AMS annual meetings. She served on the AGU Publication Committee for two terms and was the Chair of the Editor-in-Chief Search Committees for the journals of Reviews of Geophysics and JAMES. Jiwen has a BS in Chemistry from Hunan University of Science & Technology; an MS in Environmental Engineering from the University of Central Florida; and a PhD in Atmospheric Sciences from Texas A&M University.

Jiwen.Fan@pnnl.gov

JEROME FAST, PNNL

Jerome is a Scientist in the Atmospheric Sciences and Global Change division at the U.S. Department of Energy's Pacific Northwest National Laboratory (PNNL). His research interests include: trace gas and aerosol modeling; climate-chemistry interactions; local and regional atmospheric modeling; boundary layer and mountain meteorology; atmospheric dispersion; and data assimilation. Jerome leads a team of scientists at PNNL performing research to better understand and represent climate-relevant processes that influence the lifecycle of clouds, aerosols, and cloud-aerosol-radiation interactions in models. His group is also one of the primary contributors to the development of the on-line WRF-Chem community model. Jerome holds a BS in Meteorology and Mathematics, and a MS and PhD in Meteorology all from Iowa State University.

jerome.fast@pnnl.gov

PAUL FIELD, UK Met Office

Paul manages the cloud scale modelling group that is part of Atmospheric Processes and Parametrizations at the UK Met Office. The cloud scale modelling group focuses on process studies of cloud microphysics. This work is used to improve the physical representation of cloud microphysical parametrizations. Currently, Paul is working on investigating mixed-phase (liquid, ice, vapour) cloud in a turbulent environment, comparing composited cloud satellite radar data with global model output and using data from the CONSTRAIN aircraft campaign to test the high resolution Unified Model. Paul was also involved with consultancy work for EASA dealing with hail threat to the aviation industry. Paul joined the Met Office in 1996 as part of the Met Research

Flight (now OBR) where he led investigations into ice and mixed-phase cloud using the Met Office research aircraft. Between 2004-2007 he worked on ice clouds with aircraft and satellite data as a Scientist at NCAR before returning to the Met Office, and he is an Affiliate Scientist with the Mesoscale and Microscale Meteorology division at NCAR. Paul is also an Associate Editor for the American Meteorological Society Journal of Climate.
paul.field@metoffice.gov.uk

MELANIE FOLLETTE-COOK, *GESTAR/MSU*

Melanie is an Assistant Research Scientist with the Goddard Earth Sciences Technology and Research center (GESTAR) at Morgan State University, working on quantifying the variability of tropospheric trace gases in preparation for a proposed NASA geostationary satellite. Prior to coming to GESTAR in 2011 she was an Assistant Research Scientist at the University of Maryland Baltimore County - Goddard Earth Sciences and Technology Center (GEST), and prior to that she was a National Research Council postdoctoral researcher at the Naval Research Laboratory (NRL) in Washington, DC. During her tenure at NRL, Melanie's research focused on furthering her doctoral work examining the distribution of ozone and water vapor in the upper troposphere/lower stratosphere using a variety of instruments and satellite platforms, as well as analyzing aerosol transport altitudes from pyro-convective biomass burning events. Melanie has a BS in Biophysics from the University of Scranton, and an MS in Meteorology and PhD in Atmospheric and Oceanic Science from the University of Maryland.

melanie.cook@nasa.gov

EDMILSON FREITAS, *University of São Paulo*

Edmilson is an Associate Professor in the Department of Atmospheric Sciences at the IAG-USP, Brazil, conducting research in the fields of mesoscale meteorology, biosphere-atmosphere interactions, and numerical modeling of the atmosphere. His main research areas are related to model developments, including urban effects and photochemical phenomena. In collaboration with INPE researchers, Edmilson worked for the past 12 years developing the Brazilian contributions to the Regional Atmospheric Modeling System (BRAMS) model, used by several operational and research centers in Brazil. He is a member of the working group of the Public Ministry of São Paulo responsible for revision of the Strategic Directive Plan for the São Paulo Municipality. He is also a member of the Brazilian Panel of Climate Change, as a collaborating author of Working Group 1 - Scientific Basis of Climate Change in Chapter 9 "Evaluation of Global and Regional Models: Climatic and Sea Level Elevation". Edmilson has a BS in Physics from the Federal University of Parana, Brazil, and an MS and PhD in Meteorology from the Institute of Astronomy, Geophysics and Atmospheric Sciences at the University of São Paulo.

efreitas@model.iag.usp.br

SAULO FREITAS, *CPTEC, Brazil and NOAA*

Saulo is a Senior Researcher with the Center for Weather Forecast and Climate Studies at the National Institute for Space Research in São José dos Campos, Brazil, where he works on numerical modeling of the atmosphere focusing on chemistry, dynamics, and convection. He also heads the Division of Modeling and Development at CPTec, where he coordinates the development of the BRAMS model and its application to operational weather and air quality forecasts at CPTec. He is currently a visiting scientist at NOAA in Boulder, Colorado. Saulo holds a BS in Physics from the Federal University of Goiás, and a DSc in Physics from the University of São Paulo.

saulo.freitas@cptec.inpe.br

ROBERT GILLIAM, *U.S. EPA*

Robert has worked for the US EPA's Atmospheric Modeling and Analysis Division since 2002 in support of their Community Multiscale Air Quality model (CMAQ) development and applications program. He has helped in areas of model evaluation and development using models such as MM5 and WRF, and worked on the implementation of the Asymmetric Convective Model (ACM) PBL physics and Pleim-Xiu Land-surface model in WRF as well as regular version updates. He also developed the Atmospheric Model Evaluation Tool (AMET). Robert graduated from North Carolina State University with a BS and MS degree in Atmospheric Science and a focus on regional and fine-scale meteorological modeling.

Gilliam.Robert@epa.gov

GEORG GRELL, *NOAA*

Georg is a CIRES Scientist with the Global Systems Division at NOAA where he leads the development of the online Weather Research and Forecast (WRF) model through collaboration with scientists from other NOAA labs and numerous national and international institutions. Georg is also developing a new approach to parameterize convection using ensemble and data assimilation techniques, and is supervising the effort to develop chemical

data assimilation 3DVAR methods for use in real-time air quality forecasting. Georg holds a BS in Mathematics and Physics from the University of Bonn and a PhD in Atmospheric Sciences from the University of Miami.

Georg.A.Grell@noaa.gov

SUE GRIMMOND, *University of Reading*

Sue is Professor of Urban Meteorology in the Dept of Meteorology at the University of Reading. Her research interests include urban climatology; surface-atmosphere exchanges; heat, carbon and water; micrometeorology; land-surface parameterisation schemes; boundary layer meteorology; and hydroclimatology. Previously she was a Professor at King's College London, and prior to that a Professor at Indiana University, Bloomington. Sue is a past President of the International Association of Urban Climate (IAUC) and past Lead Expert for the WMO on Urban and Building Climatology. She is an Editor for the Journal of Atmospheric and Oceanic Technology, and on the editorial boards of the Journal of Applied Meteorology and Climatology; and Urban Climate. She is a past member of the editorial boards of the Annals of the Association of American Geographers; Agricultural and Forest Meteorology; Geography Compass; and Advances in Meteorology. In 2006 Sue was elected Fellow of the AMS and awarded Doctor of Science Honoris Causa, from Göteborg University. In 2008 she was awarded the Universitatis Lodziensis Amico Medal from University of Łódź, Poland and in 2009 she was awarded both the Helmut E Landsberg Award from AMS and the Luke Howard Award from the International Association for Urban Climate. Sue is a Special Expert to the Shanghai Institute of Meteorological Science, Shanghai Meteorological Service, and China Meteorological Administration and an advisor to CLICUB, WISE, NEON and WMO. Sue holds a BSc (Hons) from the University of Otago, New Zealand, and an MSc and PhD in from The University of British Columbia.

c.s.grimmond@reading.ac.uk

JONATHAN GUERRETTE, *University of Colorado at Boulder*

Jonathan (JJ) is a PhD candidate at the University of Colorado at Boulder. His research goal is to reduce uncertainties in air quality forecasts and climate forcing due to aerosols and green house gases. He has developed the online meteorology-chemistry adjoint for WRF-Chem, WRFPLUS-Chem, and has enabled chemical source attribution in WRFDA-Chem through 4D variational data assimilation. Prior to beginning his doctoral work, JJ completed internships at Boeing's Commercial Airplanes and Satellite Systems departments. He holds a BS and MS in Mechanical Engineering from the Rochester Institute of Technology.

Jonathan.Guerrette@colorado.edu

KEMAL GURER, *California Air Resources Board*

Kemal has served as a researcher at the California Air Resources Board (CARB) since 1998 where he has been studying atmospheric flow to understand the formation, dissipation and transport of pollutants in the atmosphere to reduce air pollution. His research interests are large eddies, turbulence, the boundary layer, evolution of mesoscale flow, and transport of pollutants. Prior to coming to CARB, Kemal was a post-doc at both the Environmental Science Department and the Environmental Occupational and Health Institute at Rutgers University. He received his doctorate degree in Atmospheric and Oceanic Sciences from the University of Wisconsin-Madison.

kgurer@arb.ca.gov

STEVEN R. HANNA, *Hanna Consultants*

Steve is a Certified Consulting Meteorologist with over 40 years of experience. He is chief scientist at Hanna Consultants, where he has worked on development of models for accidental releases of hazardous gases such as chlorine, analyses of observations from field experiments involving tracer gas releases in city centers, and development and evaluation of comprehensive modeling systems where the end result is the determination of health effects. He also has an appointment as an Associate Professor at the Harvard School of Public Health, where he conducts research on urban meteorology and dispersion. Steve has a BS, MS and PhD from Penn State.

hannaconsult@roadrunner.com

JENNIFER HEGARTY, *AER*

Jennifer is a Staff Scientist in the Air Quality and Atmospheric Composition group at Atmospheric and Environmental Research (AER), Inc. in Massachusetts. Her research interests include numerical weather prediction; synoptic meteorology; atmospheric composition and air quality; remote sensing of meteorological parameters and trace gases from satellites; and Lagrangian particle dispersion modeling (WRF-STILT and HYSPLIT). Jennifer is currently the AER PI on a collaborative NSF-funded study with Harvard to quantify GHG emissions in urban areas, esp Boston. She is also the PI on a NASA-funded project to investigate the spatio-temporal variability of the urban PBL height using high-resolution WRF modeling and measurements from micro-

pulse lidar deployments. In addition Jennifer actively supports a number of other studies at AER including the modeling of atmospheric ammonia concentrations in California's central valley; wild fire emissions; and the development of retrieval algorithms for the Tropospheric Emissions Spectrometer onboard the NASA Aura satellite. In addition to her career at AER, Jennifer has also taught Meteorology at Northern Essex Community College, been a Researcher at the University of New Hampshire, and worked for Ontar Corporation. She has a BS in Meteorology from the University of Massachusetts at Lowell; an MS in Meteorology from Penn State; and a PhD in Earth and Environmental Sciences from the University of New Hampshire, where she was a recipient of both the NASA Earth and Space Science Fellowship and NASA New Hampshire Space Grant Fellowship.

JHegarty@aer.com

JOHN HENDERSON, *Atmospheric and Environmental Research (AER)*

John is a Senior Staff Scientist in the Modeling and Data Assimilation group at Atmospheric and Environmental Research where he has served as a scientist since 1997. His research interests lie in numerical weather prediction (NWP), data assimilation and applications to operational forecasting. Currently John is responsible for NWP and Atmospheric Transport and Dispersion (ATD) simulations at AER in support of the NASA Carbon in Arctic Reservoirs (CARVE) mission. Recently he was also a member of the AER team that developed the Ground Segment for the GOES-R series of geostationary satellites. Prior experience includes evaluation of NWP simulations for the EPA; implementation of operational NWP systems for US and foreign government agencies; modeling of urban environments to support CO₂ monitoring and offshore winds to identify resource potential; upgrades to global cloud forecasts at the Air Force Weather Agency; and development, maintenance and evaluation of a suite of commercial forecasting tools. John is a Certified Consulting Meteorologist with the American Meteorological Society and a member of the CARVE Airborne Science Campaign Team that received a 2013 Group Achievement Award from NASA. He is a graduate of McGill University.

jhenderson@aer.com

SONG-YOU HONG, *Korea Institute of Atmospheric Prediction Systems*

Song-You is with the Numerical Modeling Lab in the Department of Atmospheric Sciences at Yonsei University in Seoul, where he is working on model development for weather and climate. Prior to joining Yonsei University, he was a Research Scientist at the Environmental Modeling Center of NCEP. Song-You has a PhD in Atmospheric Sciences from Seoul National University.

songyouhong@gmail.com

MIN HUANG, *George Mason University / NOAA*

Min is a Research Assistant Professor in the Center for Spatial Information Science and Systems at George Mason University and a visiting scholar at NOAA NCWCP. Her group conducts trace gas and aerosol research applying to NOAA's real-time air quality forecast, and develops dust climate indicators for the US National Climate Assessment. Prior to coming to GMU, Min worked at NASA's Jet Propulsion Lab as a Caltech postdoctoral research scholar, focusing on using multi-scale chemical transport modeling and satellite data assimilation to improve modeled ozone source attribution in the western US. Min obtained her PhD from the University of Iowa for research focused on regional chemical transport modeling of western US air quality and source attribution of criteria air pollutants.

mhuang10@gmu.edu

YIQIN JIA, *Bay Area Air Quality Management District*

Yiqin is an Atmospheric Modeler at the Bay Area Air Quality Management District with 18 years experience in mesoscale meteorological and air quality model applications and evaluations. She has been involved with various projects at the District including the modeling of air toxics, fine and ultrafine particulate matter and ozone, to support various District programs such as the Community Air Risk Evaluation Program, the Wood-Burning Rule, and the preparation of Clean Air Plans. Prior to working for the District, Yiqin studied the impacts of biodiesel fuels on air quality and human health and prepared the annual meteorological modeling for the Western Regional Air Partnership. She was a consulting research meteorologist in Science Systems and Applications Inc., working at NASA Goddard Space Flight Center (GSFC), where she managed, maintained and applied the PSU/NCAR mesoscale model for the atmospheric studies. She won the Outstanding Achievement Award from the NASA GSFC Mesoscale Atmospheric Processes Branch in 2001. She is familiar with many meteorological and air quality models including WRF, MM5, CAMx, CMAQ, and CALMET/CALPUFF. She holds two MS degrees, one in Geophysics from the University of Kansas and the other in Atmospheric Dynamics from the Institute of Atmospheric Physics, Chinese Academy of Sciences.

yjia@baaqmd.gov

PRAKASH KARAMCHANDANI, ENVIRON

Prakash is a Senior Manager at Environ in Novato, California and has over 26 years of experience in photochemical air quality model development and applications. He has managed several large modeling studies for ozone, particulate matter, visibility, acid deposition, nitrogen deposition, mercury and other air toxics. His expertise includes reactive plume modeling, three-dimensional grid modeling, and sub-grid scale modeling. He has played a lead role in the development, application and evaluation of a variety of advanced air quality models, including the SCICHEM reactive plume model, and the plume-in-grid version of CMAQ, referred to as CMAQ-APT. Prakash has also played a key role in several international model development and application projects, including the Canadian Acid Deposition and Oxidant Model (ADOM), the German Transport and Deposition of Acidifying Pollutants (TADAP) model and the Santiago, Chile, urban photochemical model (SANMOD). He has also performed several reviews of air quality models including a critical review of acid deposition air quality models for the US EPA Clean Air Markets Division (CAMD). Prakash has published over 50 peer-reviewed papers in scientific journals, and has made numerous technical presentations at conferences and workshops. He is a member of the External Advisory Committee for the Community Modeling and Analysis System (CMAS) and served on a project advisory committee for a California Energy Commission (CEC) project to improve the understanding of regional and near-source air quality impacts of distributed generation sources. Prakash holds PhD and MS degrees in Chemical Engineering from the University of Kentucky and a BS in Chemical Engineering from the Indian Institute of Technology, Bombay.

prakash@environcorp.com

STACEY KAWECKI, University of Michigan

Stacey is a PhD student at the University of Michigan under the advisement of Allison Steiner, focusing on urban aerosol and severe weather interactions. She is active in the academic community, participating in the department student organization (AOSS-GUSTO) and the Michigan Geophysical Union (MGU); and has acted as an Engineering Teaching Consultant (ETC). Prior to pursuing her doctorate, Stacey worked on observing and forecasting weather for the Mount Washington Observatory in addition to developing distance learning educational programs. She received her Bachelor's of Science in Meteorology from Rutgers University in 2006.

slekaw@umich.edu

MICHAEL KIEFER, Michigan State University

Michael is an Assistant Professor in the Geography Department at Michigan State University specializing in numerical modeling of meso- to microscale atmospheric phenomena. He has worked on topics as varied as simulating mean and turbulent flow downstream of wildland fires to examining nocturnal cooling processes inside basins and valleys. Michael was the primary developer of the ARPS-CANOPY model, a version of the Advanced Regional Prediction System (ARPS) model in which the effects of vegetation elements (e.g., branches, leaves) on drag, turbulence production/dissipation, radiation transfer, the surface energy budget, and moisture exchanges are accounted for through modifications to the ARPS model equations and parameterizations. To date, ARPS-CANOPY has been used to study flows within orchard canopies, fire-perturbed conditions inside heterogeneous forest canopies, and nocturnal cooling in forested complex terrain. Michael came to MSU as a post-doctoral research associate in 2009, and became an Assistant Professor in 2013. He holds a BS in Atmospheric Science from the University at Albany and MS and PhD degrees in Atmospheric Science from North Carolina State University.

mtkiefer@msu.edu

BRANKO KOSOVIC, NCAR

Branko is a Program Manager for Renewable Energy in the Research Applications Laboratory at the National Center for Atmospheric Research in Boulder. His work focuses on studies of flow, transport, and dispersion in atmospheric boundary layers using large-eddy simulations, specializing in subgrid modeling of turbulence in stably-stratified flows. Branko also works on inverse problems using nonlinear optimization and Bayesian inference with stochastic sampling. He is currently working on extending multiscale modeling capabilities in the WRF model for wind energy and transport and dispersion applications. Branko has a BS in Mechanical Engineering from Rijeka University, an MS in Aero/Astronautical Engineering from Penn State, and a PhD in Aero/Astronautical Engineering from the University of Colorado, Boulder.

branko@ucar.edu

MICHAEL KU, New York State Department of Environmental Conservation

Michael is currently section chief in the Air Quality Analysis and Research Bureau of the New York State Department of Environmental Conservation. He coordinates photochemical, meteorological, and emission

modeling to support the State Implementation Plan (SIP); coordinates analysis of both ambient air quality data and New York state toxic monitoring networks data to identify the change and trend of New York air quality; oversees ongoing research in the areas of model performance evaluation and air quality data analysis; and coordinates the Ozone Transport Commission (OTC) on the regional modeling for ozone, PM, and regional haze.
michael.ku@dec.ny.gov

SARIKA KULKARNI, *California Air Resources Board*

Sarika is an atmospheric scientist who has worked extensively on issues related to long range transport of air pollutants at local, regional and global scales. Currently, she is a key member of CARB's regional air quality modeling group that supports the implementation and enforcement of regulations through State Implementation Plans (SIP), which are designed to improve air quality in State of California. Sarika received her PhD in Chemical and Biochemical Engineering from the University of Iowa with focus on understanding the aerosol source receptor relationships by conducting chemical transport modeling and applying data assimilation using satellite products at regional and hemispheric scales. She has participated in several field campaigns (including ARCTAS 2008, INTEX-B 2006 and INTEX-A 2004) and has a background in using advanced statistical techniques for analyzing atmospheric data.

sarika.kulkarni@arb.ca.gov

PETER H. LAURITZEN, *NCAR*

Peter is a Research Scientist in the Atmospheric Modeling and Predictability (AMP) Section of the National Center for Atmospheric Research in Boulder, Colorado. His work focuses on improving our understanding of the global atmosphere and its role in the climate system through modeling and observational studies, and to represent that understanding in the form of improved numerical models of the atmosphere and larger climate system. Peter's research interests include: dynamical cores for weather and climate models; remapping between spherical grids; advection/transport schemes (in particular, finite-volume methods) for unstructured grid; idealized test cases; limiters/filters for monotonicity; and physics-dynamics coupling. Peter has a BSc in Physics from the University of Aarhus, and an MSc and PhD in Geophysics from the University of Copenhagen.

pel@ucar.edu

HSIANG-HE LEE, *Singapore-MIT Alliance for Research & Technology*

Hsiang-He is a postdoctoral researcher at the Singapore-MIT Alliance for Research & Technology. Her research interests are Southeast Asia biomass burning, air pollution, aerosol-cloud interaction, radiation and climate. She received a PhD from the University of California, Davis in 2014 where her research focused on the impact of aerosol-cloud-radiation interaction on California weather, which included fog formation and winter storm precipitation. Recently, her research field extends to regional and global climate. Due to her research interests, she develops new aerosol modules to study global visibility and haze frequency in the Community Earth System Model (CESM). In a regional biomass burning study, she uses the Weather Research and Forecasting chemistry model (WRF-Chem) to examine the influences of various meteorological regimes on the fire aerosol life cycle. Hsiang-He has a BS in Atmospheric Sciences and Meteorology from National Taiwan University.

hsiang-he@smart.mit.edu

MEIYUN LIN, *Princeton University/NOAA*

Meiyun is a Research Scientist at NOAA and Princeton University's Cooperative Institute for Climate Science (CICS). She is also an investigator on the NASA Aura Science Team in Atmospheric Composition and the NASA Air Quality Applied Sciences Team. Meiyun's research seeks to advance knowledge on the interactions of air quality with weather and climate, specifically, how climate variability and change, long-range transport of Asian pollution, and intrusions of stratospheric ozone deep into the troposphere affect U.S. ozone air quality on time scales ranging from days to decades. The U.S. EPA is proposing to lower the National Ambient Air Quality Standard (NAAQS) for ground-level ozone from 75 ppbv to 65-70 ppbv. Process-level understanding of sources of U.S. surface ozone is thus relevant to an effective implementation of the national standard. Prior to joining Princeton, Meiyun held Postdocs at the University of Wisconsin Center for Sustainability and the Global Environment, and the Center for Climate System Research at the University of Tokyo. She holds a BE in Environmental Science and Engineering from Sichuan University, an ME in Environmental Engineering from the Dalian University of Technology, and a PhD in Civil Engineering from the University of Tokyo.

meiyunl@princeton.edu

JUNJIE LIU, *JPL*

Junjie is a Research Scientist in the Tropospheric Sounding, Assimilation, and Modeling (TSAM) group at JPL where her research broadly covers the development of data assimilation techniques to better use satellite and

ground-based observations to constrain model state variables, surface forcing, and model parameters. Her current research focuses on understanding the surface carbon budget from "top-down" constraints, as well as terrestrial biosphere dynamics, by improving the process representation with the use of satellite observations and data assimilation techniques. This will ultimately lead to the predictability of the carbon cycle and climate variability on seasonal to decadal time scales. Junjie has a BS and MS from the Nanjing Institute of Meteorology and a PhD from the University of Maryland, College Park. She also held a postdoc position at UC Berkeley.

Junjie.Liu@jpl.nasa.gov

XUELING LIU, UC Berkeley

Xueling is currently a graduate student in the Earth and Planetary Science department at the University of California, Berkeley under the supervision of Ronald Cohen. Her focus is on using atmospheric transport models combined with measurements made from surface, aircraft and space to enhance our understanding of the urban emission processes of NO_x. Xueling received a BS in Environmental Engineering from Tsinghua University.

liuxl08@berkeley.edu

KATHERINE LUNDQUIST, Lawrence Livermore National Laboratory

Katie is a research staff member at LLNL in the field of computational fluid dynamics, working on both atmospheric and engineering applications. She is currently developing the WRF model for improved multi-scale simulations, spanning from the mesoscale to the large-eddy simulation scale. Model developments include vertical grid nesting, released in WRF v3.6.1, and the development of an immersed boundary method in WRF, which facilitates large-eddy simulations over explicitly resolved complex terrain. Additionally, she has contributed to the large-eddy turbulence closures, radiation models, scalar transport schemes, and surface boundary conditions in the WRF model. Katie earned a BS in Mechanical Engineering from the University of Texas at Austin, and a MS and PhD In Engineering from the University of California, Berkeley, where she researched atmospheric boundary layer flows over complex terrain under the supervision of Fotini Katopodes Chow. Katie received the Lawrence Scholars Program Fellowship while at UC Berkeley, and studied jointly as a graduate fellow at the Lawrence Livermore National Laboratory (LLNL), where she continued her post-doctoral studies.

kal@llnl.gov

RICHARD McNIDER, University of Alabama, Huntsville

Dick is a mathematician/atmospheric scientist at the University of Alabama, Huntsville. His initial work was as an oceanographer and his broad background in the interdisciplinary Environmental Science Program at the University of Virginia have lead him on an interdisciplinary career. Dick joined the Math Department at UAH in 1983 and progressed to Full Professor in 1994. He has concentrated on the use of satellite data in mesoscale and air quality modeling. Through his work in mathematics he embraced the use of nonlinear dynamics to study the stable boundary layer and its response to climate change. In recent years he has been involved in agricultural and water policy issues. He founded one of its largest research centers at UAH; the Earth System Science Center, and served as the Alabama State Climatologist from 1982-1994. He also served as Dean of the College of Science at UAH and as Executive Director of the National Space Science and Technology Center. Dick is a Fellow of the American Meteorological Society. His original degree was in mathematics from the University of Alabama. He then studied oceanography and meteorology at Florida State University where he earned an MS; completing his PhD in Environmental Science at the University of Virginia.

mcnider@nsstc.uah.edu

JEFF McQUEEN, NOAA

Jeff is an Air Quality Forecast modeling team leader and meteorology scientist in the Mesoscale Modeling Branch of the National Oceanic and Atmospheric Administration in Boulder, Colorado where he works on meteorological modeling and air quality including NWS/NCEP. Jeff has an MS in Atmospheric Science from Colorado State University and a BA in Environmental Sciences from the University of Virginia.

jeff.mcqueen@noaa.gov

DEMerval SOARES MOREIRA, CPTEC/INPE

Demerval is a researcher in geosciences with the Brazilian Institute for Space Research (INPE) and the Center for Weather Forecasting and Climate Research (CPTEC) in São Paulo - one of 12 Global Producing Centers of Long Range Forecasts (GPCs) designated by the World Meteorological Organization. His research focuses on atmospheric modeling, with a particular emphasis on numerical modeling, the carbon cycle, biomass burning aerosols, and land surface processes. Demerval has a BS and MS in Meteorology from the University of São Paulo, and a PhD in Meteorology from the Brazilian Institute for Space Research.

demerval.moreira@cptec.inpe.br

JOVANKA NIKOLIC, *Michigan State University*

Jovanka is a PhD candidate in the Geography Dept. at Michigan State University. Her present work is focused on the transport and dispersion of smoke from prescribed and wildfires, especially the impact of canopy structure on smoke behavior. Jovanka uses a particle dispersion model to better explain the impact of canopy and atmospheric conditions on smoke spreading in order to assist fire managers to make better decisions when planning and carrying out prescribed burns, as well as the impact of prescribed and wildland fires on local air quality. She has a BS Meteorology from the Faculty of Physics at the University of Belgrade, and an MS from Michigan State University with a research focus on northerly low-level jets. Before graduate work Jovanka worked for the Republic Hydrometeorological Service of Serbia.

nikolicj@msu.edu

TALAT ODMAN, *Georgia Tech*

Talat is a Principal Research Engineer at Georgia Tech with over 25 years of research experience in the areas of atmospheric chemistry, air pollution meteorology and air quality modeling. Since 2007, his research has focused on wildland fires and their air quality impacts. Sponsored by various national organizations, Talat's wildland fire research resulted in contributions to the technical literature and to the development of simulation/decision support models. He has served his profession as a member of several professional organizations and advisory committees, as session chair at conferences, and as an editor and reviewer of technical publications. Talat has a BS from Bogazici University in Turkey, an MS from the Florida Institute of Technology, and a PhD from Carnegie Mellon University - all in Mechanical Engineering.

talat.odman@ce.gatech.edu

AYODEJI OLULEYE, *Federal University of Technology Akure, Nigeria*

Ayodeji is a Lecturer in Meteorology in the School of Earth and Mineral Sciences at the Federal University of Technology in Akure, Nigeria. His primary research focuses on Industrial pollution modelling and climate change detection. Ayodeji holds a BTech, MSc and PhD.

oluleyea@gmail.com

SUSAN O'NEILL, *U.S. Forest Service*

Susan is a Research Air Quality Engineer with the USDA Forest Service in Seattle, Washington where she works on methods of linking airborne particulate matter to potential health impacts from wildfire smoke. She was a founding member of AirFire, where she led development of many of AirFire's smoke modeling tools before taking a position at the USDA National Resource Conservation Service. Susan holds a PhD in Atmospheric Science from Washington State University.

susan.m.oneill@gmail.com

MARTIN J. OTTE, *U.S. EPA*

Martin is a Scientist in the Atmospheric Modeling and Analysis Division at US EPA coupling tropospheric chemical models with next-generation variable-resolution global models. He has a BS in Meteorology from Rutgers University and a PhD in Meteorology from Penn State University.

martinjotte@gmail.com

MARIUSZ PAGOWSKI, *NOAA*

Mariusz is a scientist in the Earth Systems Research Laboratory at NOAA in Boulder. His primary areas of interest include ensembles and data assimilation for meteorology and chemistry as well as boundary layer and mesoscale modeling. Prior to joining NOAA, Mariusz worked at the University of Toronto and the Meteorological Service of Canada. He received his MSc and PhD from York University.

Mariusz.Pagowski@noaa.gov

ERIC R. PARDYJAK, *University of Utah*

Eric is a Professor of Mechanical Engineering and an Adjunct Professor of Atmospheric Sciences at the University of Utah. His research interests include application of fundamental turbulence concepts to studies in environmental atmospheric flows in complex terrain (i.e., urban and mountainous) and both experimental (field & laboratory based) and computational methods. More recent work is focused on optimization of sustainable urban designs for air quality and energy efficiency. Prior coming to Utah, Eric worked in the Energy and Environmental Analysis Group at Los Alamos National Laboratory as a postdoctoral researcher. He holds a BS in Mechanical Engineering from Michigan State University, an MS in Mechanical Engineering from the University of Wisconsin-Madison, and a PhD in Mechanical Engineering from Arizona State University.

pardyjak@gmail.com

DAVID D. PARRISH, CIRES and NOAA

David is a Senior Research Scientist with the Cooperative Institute for Research in Environmental Sciences (CIRES) at the University of Colorado working with the Chemical Sciences Division of the Earth System Research Laboratory of NOAA. He also works as a consultant with David D. Parrish, LLC. David's work covers a wide range of topics in atmospheric composition from air quality to climate change. He coordinated seven of NOAA's surface and aircraft based field studies, and has published over 200 peer-reviewed publications with an h-index of 62. In 2014 he was elected as a Fellow of the American Geophysical Union (AGU) in recognition of his research. David's atmospheric chemistry research began part-time with NOAA in 1978, and he moved there full-time in 1987. He was Program Leader of the Tropospheric Chemistry Group from 2009 until his partial retirement in 2014. Before embarking on his research, David taught Chemistry at the University of Illinois at Chicago (1973-1975) and at Metropolitan State College in Denver beginning in 1975 where he served as department Chair from 1986-1987. He received his BS in Chemistry from Colorado College, his PhD in Physical Chemistry from UC Berkeley, and he was a postdoc at Harvard in Physical Chemistry.

david.d.parrish@noaa.gov

KANHU CHARAN PATTNAYAK, University of Leeds

Kanhu is a Post Doctoral Research Fellow in the School of Geography at the University of Leeds. His research interests focus on Indian summer monsoons, regional climate modeling, climate change and climate variability. Prior to coming to Leeds, Kanhu was a Project Scientist at NCMRWF, at the Ministry of Earth Sciences in Delhi, and before that he was a Research Scholar at the Centre for Atmospheric Sciences, IIT in Delhi and a Research Assistant at the India Meteorological Department in Pune, India. Kanhu holds an Honors BSc in Mathematics and an MSc in Oceanography from Berhampur University in Orissa, an MTech in Atmospheric Sciences from Andhra University in Visakhapatnam, and a PhD in Atmospheric Sciences from the Indian Institute of Technology in Delhi with a thesis on Indian summer monsoon circulation and precipitation in the warming atmosphere.

K.C.Pattnayak@leeds.ac.uk

RONAN PAUGAM, King's College London

Ronan is a Research Associate in Geography at King's College London working with Martin Wooster on measurement and modelling of Fire Radiation Power (FRP). His research interests include: understanding the physics of fire, and in particular radiation; developing a coarse/empirically-based radiative transfer model for large fires; fire radiation measurement and remote sensing techniques for prescribed burn; meso scale atmospheric dynamics; and coupling of physical processes and turbulent atmospheric dynamics. Ronan has a BSc in Fundamental Physics and an MSc (ENS-cachan in Applied Mathematics) from the University Paris Sud; and a Diplome d'Ingenieur and a PhD from the Ecole Centrale Paris (CERFACS) studying numerical simulation of condensation trail formation and its interaction with atmospheric turbulence.

ronan.paugam@kcl.ac.uk

KEN PICKERING, NASA Goddard

Ken is an atmospheric scientist at the NASA Goddard Space Flight Center, working in the Atmospheric Chemistry and Dynamics Laboratory of the Earth Sciences Division where he is involved in many atmospheric chemistry modeling and analysis activities. He conducts air quality applications using data from the Ozone Monitoring Instrument onboard NASA's Aura satellite, and directs regional air quality modeling simulations using CMAQ and WRF-Chem. Ken served as Co-Chair of the Air Quality Working Group for the Aura Science Team and has directed projects sponsored by NASA's Applied Sciences Air Quality Program. He is also Project Scientist for the NASA Earth Venture - 1 DISCOVER-AQ project under which major field experiments have been conducted in the Baltimore-Washington area, the San Joaquin Valley, Houston, and the Front Range region of Colorado from 2011 to 2014. Ken leads other projects aimed at evaluating convective transport in NASA's global chemical transport model and chemistry and climate model (GEOS-5 CCM). He is also an Adjunct Professor in the Department of Atmospheric and Oceanic Science Department at the University of Maryland. Before joining NASA, Ken was a research faculty member at the University of Maryland, conducting model development and applications on scales ranging from individual convective clouds to regional and global domains. He also performed air quality modeling for GEOMET, Inc.. Ken has a BS in Meteorology from Rutgers, an MS in Atmospheric Science from the State University of New York at Albany, and a PhD in Meteorology from the University of Maryland.

kenneth.e.pickering@nasa.gov

R. BRADLEY PIERCE, NOAA

Brad is a Physical Scientist with the Advanced Satellite Products Branch at the NOAA/NESDIS Center for

SaTellite Applications and Research in Madison. Prior to coming to NOAA he was a Research Scientist in the Atmospheric Science Division of the NASA Langley Research Center. Brad's primary focus has been the design, development and execution of global atmospheric models. He is the Principal Investigator of the RAQMS (Real-time Air Quality Modeling System) - a global meteorological and chemical modeling system for assimilating satellite observations of atmospheric chemical composition and aerosol optical properties and predicting the global distribution of atmospheric trace gases and aerosols. Brad holds a BS in Mathematics and Physics from the University of Wisconsin-River Falls and a PhD in Meteorology from the University of Wisconsin-Madison.

brad.pierce@noaa.gov

JON PLEIM, U.S. EPA

Jon is the Branch Chief of the Atmospheric Modeling and Analysis Division of the National Exposure Research Laboratory at the Environmental Protection Agency. His research centers on how meteorological processes impact air quality; specifically on the evaluation of WRF-NMM and WRF-ARW meteorology on CMAQ Simulations. Jon holds a BS in Atmospheric Science from Cornell and a MS and PhD in Atmospheric Science from the State University of New York at Albany.

Pleim.Jon@epamail.epa.gov

ANNA POSSNER, ETH Zurich

Anna is a researcher with the Institute for Atmospheric and Climate Science at ETH Zurich. Her main interests involve shallow boundary layer clouds, their dynamics, and their sensitivity to CCN and IN concentrations, and in particular, the representation of these processes in current climate models. Anna has a PhD in Atmospheric Science from ETH Zurich where she worked on ship track simulations in the marine boundary layer. She came into the atmospheric sciences from high energy physics while doing a Master's degree in mathematical physics at the Max Planck Institute for Meteorology. Her MS work involved analysing global CAPE distributions and inter-vortical exchange at the walls of the Antarctic polar vortex.

anna.possner@env.ethz.ch

BRIAN POTTER, US Forest Service

Brian is a Research Meteorologist and LGBT Special Emphasis Program Manager at the Pacific Wildland Fire Sciences Lab of the USDA Forest Service in Seattle. He is currently working on a variety of projects - including how dry air and high winds several thousand feet above the ground can influence fire behavior; the meaning of "extreme fire behavior"; how the atmosphere interacted with major wildfires in Australia in 2009; and the potential role of water vapor in fire plumes. He is also interested in historical gaps in fire weather research; the many scales of atmospheric processes that influence fire behavior; and the sensitivity and uncertainty of fire behavior models and tools. Brian believes in focusing on what can be predicted far enough in advance that the information can help protect firefighters, resources, and people's health and property. He has a degree in Physics from Carleton College and one in Atmospheric Sciences from the University of Washington.

bpotter@fs.fed.us

S.T. RAO, North Carolina State University

ST is currently serving as both an Adjunct Professor in the Department of Marine, Earth and Atmospheric Sciences at the State University of North Carolina in Raleigh, and as Editor-in-Chief of the Journal of Air & Waste Management. Prior to this he was Director of the Tropospheric Science and Modeling Division at U.S. EPA Research Triangle Park. Prior to coming to North Carolina, ST was an Adjunct Professor at the NY State Department of Environmental Conservation; a Professor of Environmental Statistics; and Assistant Commissioner of Science and Technology at the State University of New York, Albany. He was also a Research Assistant at the Institute of Tropical Meteorology in Pune, India and with the Government Arts. ST has won many awards and been elected to many academic societies. He has an Honors BS in Mathematics, Physics and Chemistry, an MS in Science Technology in from the Andhra Loyola College in Vijayawada, India, and a PhD in Atmospheric Science from the State University of New York at Albany.

strao@ncsu.edu

DONNA REID, UC Davis

Donna organizes conferences for the Air Quality Research Center at UC Davis on aviation environmental issues, agriculture and air quality, atmospheric chemistry, climate change, and Meteorology. Prior to coming to Davis, Donna organized continuing education programs at UC Berkeley and developed cultural exhibits and programs in the Bay Area. She holds a BA in Anthropology from the University of Southern California and an MA and PhD in Folklore & Mythology from UCLA. Donna has published on many subjects and produced an award-winning video documentary. Her dissertation was on the role of the Welsh Eisteddfod in the formation of national identity.

She has played in a rock & roll band, twirled a flag for The Spirit of Troy, and appeared on Romper Room. And like the "real" Donna Reed, she vacuums in her high-heels.

dvreid@ucdavis.edu

ARMISTEAD G. RUSSELL, *Georgia Tech*

Ted is the Georgia Power Distinguished Professor and Coordinator of Environmental Engineering at the Georgia Institute of Technology. His expertise is in air quality engineering, with particular emphasis on air quality modeling, monitoring and analysis. Ted has served on a number of NRC committees and chaired two - the committee to review EPA's mobile model and the Carbon Monoxide Episodes in Meteorological and Topographical Problem Areas committee. He also served on the committee on Tropospheric Ozone Formation and Measurement; the committee on ozone forming potential of reformulated fuels; and the committee on Risk Assessment of Hazardous Air Pollutants. Recently, he served on two EPA SAB subcommittees: the CASAC subcommittee on the National Ambient Air Monitoring Strategy; and the subcommittee on Air Quality Modeling of the Advisory Council on Clean Air Compliance Analysis. Ted was also a member of the EPA FACA Subcommittee on Ozone, Particulate Matter and Regional Haze; the North American Research Strategy for Tropospheric Ozone; and California's Reactivity Science Advisory Committee. Previously Ted was on the Office of Science, Technology and Policy's Oxygenated Fuels Program Review, various National Research Council program reviews, and a committee to review a Canadian NRC program. Ted arrived at Georgia Tech in 1996 from Carnegie Mellon University. He holds a BS from Washington State University and an MS and PhD from Caltech - all in Mechanical Engineering.

ted.russell@ce.gatech.edu

DAVID SAILOR, *Portland State University*

David is a Professor in the Mechanical and Materials Engineering Dept. and founding Director of the Green Building Research Laboratory (GBRL) at Portland State University. The GBRL works closely with industry to test and develop new technologies and strategies for high performance buildings, with a focus on energy efficiency, indoor environment, and urban climate interactions. David's research encompasses scales ranging from energy analysis of individual buildings to measurements and modeling of the urban climate system. He has authored more than 70 peer-reviewed articles and is an active reviewer for federal agencies and journals. He has served as chair of the AMS Board on the Urban Environment (2008-2011) and is currently serving as the Secretary of the Board of the International Association for Urban Climate. Prior to coming to Portland, David served 10 years on the Engineering faculty at Tulane University. His early research focused on mesoscale atmospheric modeling of urban areas with an emphasis on heat island mitigation strategies. David holds a PhD from UC Berkeley where he conducted research with the Energy and Environment Division at LLBL.

sailor@pdx.edu

UMA SHANKAR, *The University of North Carolina*

Uma is a Research Associate at the Center for Environmental Modeling for Policy Development at UNC-Chapel Hill focusing on atmospheric particulate matter chemistry and microphysics; air quality-climate interactions; and development and evaluation of advanced simulation models for air quality and climate impacts. She has over 20 years' experience developing and applying comprehensive atmospheric chemistry-transport models including RPM, MAQSIP, CMAQ, MADE and METCHEM. Recent projects include studying the interaction of sea salt particles with anthropogenic species; a METCHEM application over South Asia to study the regional radiative impacts of anthropogenic PM emissions from India; and evaluations of METCHEM over North America and the Southeastern U.S. Uma currently leads a NASA Applied Sciences Program to integrate satellite data and advanced analysis tools into the VIEWS program for air quality decision support. She also coordinates and conducts CMAQ modeling studies to support development of a national environmental health strategy for the UAE. Uma has a BS in Physics and Mathematics, magna cum laude, from the University of North Carolina at Wilmington, an MS in Physics from The University of North Carolina at Chapel Hill, and a Master's in Nuclear Engineering from North Carolina State University.

ushankar@unc.edu

CHARLES O. STANIER, *University of Iowa*

Charles is an Associate Professor in the Department of Chemical and Biochemical Engineering, and a member of the IIHR Hydroscience and Engineering Institute at the University of Iowa. His research interests are in fundamental and applied issues in air pollution, climate science, and aerosol science. He leads investigations focused on using field measurements, 3D models, and parcel models to understand inorganic and organic aerosols. His field studies specialize in the continuous monitoring of ultrafine particles and secondary aerosol

precursors; most recently in Mexico City, Iowa City IA, and Bondville IL. Charles is the recipient of the NSF CAREER, the Walter R. Rosenblith Young Investigator award of the Health Effects Institute, and the Sheldon K. Friedlander award of the American Association for Aerosol Research. Prior to pursuing an academic career, Charles worked in industry for 5 years as an environmental engineer and supervisor. Charles holds a professional engineer license and a BSE in Chemical Engineering (High Honors) from Princeton, a Master's in Environmental Engineering from John Hopkins, and a PhD in Chemical Engineering from Carnegie Mellon University.

charles-stanier@uiowa.edu

DAVID R. STAUFFER, *The Pennsylvania State University*

Dave is a Professor of Meteorology at Penn State with more than 30 years experience in meteorological research and development, numerical weather prediction (NWP), data assimilation, and software development and management. He is a principal developer of the Penn State/NCAR MM5 Modeling System, and is a contributing developer of the Weather Research and Forecast (WRF) model in the areas of data assimilation and model physics. He is widely recognized for his expertise in building customized, state-of-the-science, mesoscale modeling and data assimilation systems for military-defense, energy and aviation concerns, as well as basic research in model development, atmospheric processes, air quality and probabilistic weather / atmospheric transport and dispersion. Dave has a BS, MS and PhD from Penn State.

drs8@psu.edu

KAY SUSELJ, *UCLA/JPL*

Kay is a at Researcher at UCLA and JPL studying boundary layer dynamics, parameterizations of physical processes in atmospheric models, and climate dynamics. Prior to coming to UCLA he was a post-doc at Caltech. He has also worked for the Environmental Agency of the Republic of Slovenia. Kay has a BSc and MSc in Meteorology from the University of Ljubljana, and a PhD in Physics from the Carl von Ossietzky University, Oldenburg, Germany.

Kay.Suselj@jpl.nasa.gov

TETSUYA TAKEMI, *Kyoto University*

Tetsuya is an Associate Professor at the Disaster Prevention Research Institute at Kyoto University. His research covers basic and applied studies on moist convection and severe storms, including heavy rains, tornadoes, and tropical convection and cyclones; turbulent flows and local circulations in complex surfaces such as urban districts and terrains; and atmospheric transport and dispersion processes. His main interests revolve around convection, turbulence, and transport. Tetsuya is also collaborating with colleagues in atmospheric sciences and related engineering fields on a national project funded by the Japanese government looking at the effects of climate change on natural disasters. Prior to coming to Kyoto, Tetsuya was an Assistant Professor at Osaka University and a lecturer at the Tokyo Institute of Technology. He was also a visitor at the National Center for Atmospheric Research in 2001-02. Tetsuya has a PhD in Atmospheric Sciences from Kyoto University.

takemi@storm.dpri.kyoto-u.ac.jp

ELENA TOMASI, *University of Trento*

Elena is a doctoral student in the school of Environmental Engineering at the University of Trento, Italy, studying meteorology and air pollutant dispersion. Her main research interests include boundary layer processes, energy exchanges at the ground-atmosphere interface, and meteorological and pollutant dispersion modeling at the local scale over complex terrain. The main focus of her current research is the reproduction of atmospheric pollutant dispersion phenomena in the Alpine region and model validation on the basis of measured data. She is working with several numerical modeling tools including WRF, AERMOD and CALPUFF. Elena received her master's degree in Environmental and Land Engineering with honors in 2013 from the University of Trento.

elena.tomasi@unitn.it

PAUL ULLRICH *UC Davis*

Paul is an Assistant Professor of Regional and Global Modeling in the Department of Land, Air and Water Resources at UC Davis and has an appointment as a faculty scientist at Lawrence Berkeley National Laboratory. He works in the Atmospheric Modeling Group where his research interests include climate modeling and model development, scientific computing, computational fluid dynamics, adaptive mesh refinement, and global / regional model coupling. Paul has a BS in Math and Applied Computer Sciences and a MS in Applied Math from the University of Waterloo, and a MS and PhD in Atmospheric Sciences from the University of Michigan.

paulrich@ucdavis.edu

BERNHARD VOGEL, Karlsruhe Institute of Technology

Bernhard is a Senior Scientist and Team Leader of the Aerosols, Trace Gases and Climate Processes group at the Institute for Meteorology and Climate Research of the Karlsruhe Institute of Technology (KIT). He has significant experience in atmospheric numerical modelling including physical and chemical processes on the regional scale and is an expert in mesoscale meteorology, atmospheric boundary layer, numerical modelling of processes on the regional scale, and the interaction of aerosol, chemistry, radiation, and clouds. Bernhard's working group developed COSMO-ART and he heads further developments of the model.

bernhard.vogel@kit.edu

ROBERT WALKO, University of Miami

Bob is a Senior Scientist in the Division of Meteorology and Physical Oceanography at RSMAS specializing in the development, improvement, and application of atmospheric models that are used to simulate and predict a wide range of atmospheric phenomena, including hurricanes. He recently developed the OLAM model, which uses advanced techniques for representing storm systems in high detail within the global atmospheric system. Hurricane simulations and forecasts performed with OLAM help us to better understand hurricane behavior, and also provide valuable information that is used to improve atmospheric models.

rwalko@rsmas.miami.edu

CAROLIN WALTER, Karlsruhe Institute of Technology

Carolin is a PhD student at the Institute of Meteorology and Climate Research, Karlsruhe Institute of Technology (KIT) working on the optimization of dispersion modelling of volcanic gases and aerosols to improve forecasting and decision-making during volcanic eruptions in order to improve aviation security. She has a Diploma Meteorology from KIT with a thesis on the influence of forest fires on radiation, temperature, precipitation and cloud formation.

carolin.walter@kit.edu

JEFFREY C. WEIL, University of Colorado and NCAR

Jeff is a research scientist at CIRES, at the University of Colorado and a visiting scientist at NCAR. His research focuses on transport and dispersion modeling in the planetary boundary layer (PBL); dispersion in canopies and wakes; urban dispersion; PBL modeling; buoyant plume and puff dynamics; and laboratory experiments. Jeff has developed Lagrangian particle dispersion models (LPDMs) driven by velocity fields from large-eddy simulations with dispersion studies of the convective, stable, and neutral PBLs and canopy flows. His current focus is on dispersion in the stable PBL and two-particle LPDMs with application to concentration variance and statistics. Jeff holds a BS from the University of Delaware and a MS and PhD from MIT, all in Mechanical Engineering.

weil@ucar.edu

COLIN M. ZARZYCKI, NCAR

Colin is currently an ASP postdoctoral fellow at NCAR. He works on the development and application of variable-resolution global modeling techniques. He is particularly interested in using these frameworks to aid in simulating tropical cyclones in next-generation climate models. His other research interests include optimizing objective methods for detecting extremes in weather and climate data and the implementation of multiscale subgrid physical parameterizations for atmospheric modeling. Colin holds a BS in Atmospheric Science from Cornell, an MS in Civil and Environmental Engineering from the University of Illinois, and a PhD in Atmospheric Science from the University of Michigan.

zarzycki@umich.edu

ZHAN ZHAO, California Air Resources Board

Zhan is an Air Pollution Specialist at the Meteorology Section of the California Air Resources Board (ARB). She leads the meteorological aspects of the climate change projects, as well as conducts in-house Weather Research and Forecasting (WRF) model simulations to support the development of the State Implementation Plans (SIPs) for California. Prior to joining ARB, Zhan worked as a postdoctoral researcher at the Scripps Institution of Oceanography for two years. The previous projects she worked on include: developing coupled aerosol-enabled regional and global climate models to better understand the influence of long-range transported aerosol plumes on regional meteorology and air quality; and dynamically downscaling the Global Climate Model (GCM) results to investigate the change of pollution-related meteorological conditions under current and future climates in California. Zhan has a PhD from the Department of Land, Air, and Water Resources at UC Davis.

zhan.zhao@arb.ca.gov

MAC-MAQ 2015 POSTER PRESENTATIONS

- 1- Estimating Plume Dispersion at PG&E's Diablo Canyon Nuclear Power Plant with WRF-FLEXPART
Ronald L. Baskett, *Lawrence Livermore National Laboratory*
- 2- Assessing the Impacts of Climate Change on Future Wildfire Activity Over the Southeast U.S. Using Dynamical Downscaling
Jared H. Bowden, *UNC Chapel Hill*
- 3- Experimental Investigation of Turbulent Jet flows for the Study of Pollutant Plume Dispersion in the Wake After a Vehicular Tailpipe
Jiangyue Chao, *The University of Hong Kong*
- 4- Observing Entrainment Mixing, Photochemical Ozone Production, and Methane Emissions by Aircraft Throughout California's Central Valley
Ian Faloon, *UC Davis* (presented by **Justin Trousdell**, *UC Davis*)
- 5- The Impact of Model Initialization and Nudging Options on WRF Model Performance During DISCOVER-AQ California
Kemal Gurer, *California Air Resources Board*
- 6- High-Resolution Transport Modeling in Support of the Carbon in Arctic Reservoirs Vulnerability Experiment (CARVE)
John Henderson, *AER*
- 7- Optimizing Explicit Horizontal Diffusivity in WRF and CMAQ for Winter PM2.5 Simulations in Central California
Yiqin Jia, *Bay Area Air Quality Management District*
- 8- Photochemical Modeling in the Coastal Areas of the Northeast U.S. During Episode Events
Michael Ku, *New York State Department of Environmental Conservation*
- 9- Refined Grid Regional Modeling of Inorganic Pollutants in Mountainous Terrain and Coastal Areas of New York
Michael Ku, *NYSDEC* (presenting on behalf of **Leon Sedifian**, *SEDEFIAN Consulting*)
- 10- Transport and Scavenging of Southeast Asia Biomass Burning Aerosols
Hsiang-He Lee, *Singapore-MIT Alliance for Research & Technology*
- 11- The Effect of a Forest Canopy on the Transport and Dispersion of Smoke Plumes from Low-Intensity Prescribed Burns: A Numerical Study with a Coupled Model
Jovanka Nikolic, *Michigan State University*
- 12- Tropospheric Ozone Pollution in Some Major Cities of West Africa
Ayodeji Oluleye, *Federal University of Technology, Akure, Nigeria*
- 13- Relationship Between Tropospheric Temperature and Indian Summer Monsoon as Simulated by RegCM
Kanhu C. Pattanayak, *Indian Institute of Technology and University of Leeds*
- 14- Investigation of Climate Change Impacts over California Using Dynamical Downscaling with Bias Correction Technique
Zhan Zhao, *California Air Resources Board*

WITHDRAWN with regrets

- Sensitivity of the Plume Rise Model (versions 0 and 2) in the Estimation of Biomass Burning Plume Injection Heights in South America **Gonzalo A. Ferrada**, *National Institute for Space Research (INPE), Brazil*
- Coastal Zone Meteorology Interactions with Air Quality **Yuxuan Wang**, *Texas A&M University*

SEE YOU
@
MAC-MAQ 2017!

Stay tuned to our website for info :
aqrc.ucdavis.edu