

NOAA ESRL GLOBAL MONITORING ANNUAL CONFERENCE 2018

David Skaggs Research Center, Room GC-402
325 Broadway, Boulder, Colorado 80305 USA

Tuesday Morning, May 22, 2018 Agenda

(Only presenter's name is given; please refer to abstract for complete author listing.)

07:00 **Registration Opens in GC-402 - lunch orders and posters collected at registration table**

07:45 - 08:30 **Morning Snacks - coffee, tea, fruit, bagels and donuts served**

Page No.

Session 1 **Welcome, Keynote Address & Highlights** — Chaired by James H. Butler

08:30 - 08:45 Welcome and Setting the Stage -

James H. Butler (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))

08:45 - 09:00 Where GMD Fits in the Big Picture -

Ko Barrett (NOAA Office of Oceanic and Atmospheric Research (OAR))

09:00 - 09:45 KEYNOTE ADDRESS - Science for Policy and Policy for Science in the Federal Government -

John P. Holdren (Harvard University, John F. Kennedy School of Government)

9:45 - 10:15 **Morning Break & Group Photo on the Stage**

Session 2 **Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks - Global Constraints on the Carbon Cycle** — Chaired by Gabrielle Petron

10:15 - 10:30 The Primacy of Observations in Climate Prediction 1

Pieter Tans (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))

10:30 - 10:45 Constraints on Global Carbon and Heat Exchanges from Measurements of Atmospheric O₂ and Related Tracers 2

Ralph Keeling (Scripps Institution of Oceanography, University of California at San Diego)

10:45 - 11:00 Monitoring Trends and Spatial Distributions of Carbon Cycle Greenhouse Gases and Related Tracers 3

Edward J. Dlugokencky (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))

11:00 - 11:15 The OCO-2 Model Intercomparison Project Reveals Systematic Transport Model Effects on Inverse Model CO₂ Fluxes 4

Andrew R. Jacobson (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)

11:15 - 11:30 CarbonTracker Asia 2016: an Estimation of CO₂ Fluxes Centering on Asia 5

Jae-Sang Rhee (National Institute of Meteorological Sciences, Seogwipo-si, South Korea)

11:30 - 11:45 The Mysterious Global Methane Budget 6

Lori Bruhwiler (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))

11:45 - 13:00 **Catered Lunch - Outreach Classroom GB-124 (pre-payment of \$12.00 at registration)**

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Session 3	
<i>Monitoring and Understanding Changes in Surface Radiation, Clouds, and Aerosol Distributions — Chaired by Allison McComiskey</i>	
13:00 - 13:15 The Scientific Utility of GMD Surface Radiation Measurements <i>Chuck Long (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	7
13:15 - 13:30 Trends in U.S. Surface Radiation and Aerosol Optical Depth over the Past 20 Years <i>John A. Augustine (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))</i>	8
13:30 - 13:45 Climatology of Aerosol Optical Properties from Storm Peak Laboratory <i>Gannet Hallar (University of Utah)</i>	9
13:45 - 14:00 On Measurements and Spatial Distribution of Light Absorbing Aerosols in the Arctic <i>John Backman (Finnish Meteorological Institute, Helsinki, Finland)</i>	10
14:00 - 14:15 Winter 2017-2018 Results from the De-Icing Comparison Experiment (D-ICE) at NOAA's Barrow Atmospheric Baseline Observatory, Utqiagvik, Alaska <i>Sara M. Morris (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	11
14:15 - 14:30 The Role of Atmospheric Circulation in the Seasonal Melt of Snow and Sea Ice in the Pacific Arctic <i>Christopher J. Cox (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	12
14:30 - 15:00 Afternoon Break	
Session 4	
<i>Guiding Recovery of Stratospheric Ozone - Ozone and Ozone Depleting Gases in the Stratosphere — Chaired by Dale Hurst</i>	
15:00 - 15:15 Increasing CFC-11 Emissions and other Unusual Atmospheric Changes: How Delayed Will Ozone Recovery Be? <i>Steve Montzka (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))</i>	13
15:15 - 15:30 Diagnosing CFC-11's Emissions in a Chemistry-Climate Model <i>Pengfei Yu (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	14
15:30 - 15:45 Ozone and Chemical Composition in the Pacific Region Measured by IAGOS <i>Hannah Clark (IAGOS-AISBL, Brussels, Belgium)</i>	15
15:45 - 16:00 Global Observations of Aerosol and Ozone from SAGE III ISS – A First Year Showcase <i>Kevin R. Leavor (Science Systems and Applications, Inc. (SSAI))</i>	16
16:00 - 16:15 South Pole Ozonesondes in 2017 Continue to Show Less Severe Ozone Loss <i>Bryan Johnson (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))</i>	17
16:15 - 16:30 Is Stratospheric Ozone Recovering as We Expect? Results of the SPARC LOTUS Analyses <i>Irina Petropavlovskikh (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	18
16:30 - 16:45 The Trials and Triumphs of SHADOZ: The Who's Who of Tropical Ozone Profiles <i>Jacquelyn C. Witte (Science Systems and Applications, Inc. (SSAI))</i>	19
17:00 - 19:30 Poster Session (DSRC Cafeteria) with appetizers and refreshments	

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Session 5	
Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks - Regional Carbon Cycle Feedbacks and Observations — Chaired by Colm Sweeney	
08:30 - 09:00 Response of North American Terrestrial CO ₂ Fluxes to Climate Variability	20
<i>Lei Hu (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	
09:00 - 09:15 Arctic-CAP: Northern High Latitude CO ₂ , CH ₄ , and CO Airborne Vertical Profile Surveys during the Arctic-Boreal Vulnerability Experiment (ABOVE)	21
<i>Charles Miller (NASA Jet Propulsion Laboratory, California Institute of Technology)</i>	
09:15 - 09:30 ICOS Research Infrastructure, Progress in the European Carbon Cycle and Greenhouse Gas Observing Network	22
<i>Alex Vermeulen (Integrated Carbon Observation System (ICOS) European Research Infrastructure Consortium (ERIC), Carbon Portal, Lund, Sweden)</i>	
09:30 - 09:45 Single-blind Testing of a Regional, Continuous Monitoring System for Finding Methane Leaks from Oil and Gas Operations	23
<i>Caroline Alden (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	
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Session 6	
Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks - Urban/Regional Emissions — Chaired by Arlyn Andrews	
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<i>John B. Miller (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))</i>	
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<i>Graham Leggett (MIRICO Ltd., Chilton, United Kingdom)</i>	
10:45 - 11:00 Little Evidence for Significant Increases in Total U.S. CH ₄ Emissions over the Past Decade	26
<i>Xin Lan (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	
11:00 - 11:15 A Multi-species Analysis of Carbon Enhancements during the ACT-America Campaign	27
<i>Bianca Baier (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	
11:15 - 11:30 How Much Can Atmospheric Data Tell Us About the North American Land Sink?	28
<i>Sha Feng (Department of Meteorology and Atmospheric Science, The Pennsylvania State University)</i>	
11:30 - 11:45 Detecting Trends in Fossil Fuel CO ₂ Emissions from Atmospheric Measurements of CO ₂ and ¹⁴ CO ₂	29
<i>Sourish Basu (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	
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Session 7	<i>Monitoring and Understanding Changes in Surface Radiation, Clouds, and Aerosol Distributions</i> — Chaired by Patrick Sheridan	
13:00 - 13:15	Use of Radiation and Cloud Observations in Model Diagnosis/Development to Reduce Cloud-Radiation Model Errors from 4-hour to 4-week Forecasts <i>Stan Benjamin (NOAA Earth System Research Laboratory, Global Systems Division (GSD))</i>	30
13:15 - 13:30	Variability of Surface Radiation Observations and HRRR Forecasts at Sites across the Columbia River Basin as Part of the Wind Forecasting Improvement Project (WFIP-2) <i>Kathleen Lantz (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	31
13:30 - 13:45	Comparison of Aerosol Optical Properties from <i>In Situ</i> Surface Measurements and Model Simulations <i>Elisabeth Andrews (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	32
13:45 - 14:00	Synthesis of Aerosol Physical, Chemical, and Radiative Properties from Various Sources: Consistency and Closure <i>Hagen Telg (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	33
14:00 - 14:15	Reducing Uncertainty in Aerosol Direct Radiative Effect Through Synergistic Use of Long-term Satellite and Ground-based Measurements <i>James Patrick Sherman (Appalachian State University, Department of Physics and Astronomy)</i>	34
14:15 - 14:30	Measurements of Aerosol Absorption during Ultra-light Global Circumnavigation, Arctic and Mediterranean Campaigns <i>Grisa Mocnik (Jozef Stefan Institute, Ljubljana, Slovenia)</i>	35
14:30 - 15:00	<i>Afternoon Break</i>	
Session 8	<i>Cross-cutting Topics - Water Vapor, Tropospheric Ozone, and Other Measurements</i> — Chaired by Irina Petropavlovskikh	
15:00 - 15:15	An Overview of GMD's Water Vapor Research <i>Dale Hurst (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	36
15:15 - 15:30	Local Measurements, Global Studies: The Utility of Balloon-borne Frost Point Hygrometer Measurements for Studying Global Stratospheric Water Vapor <i>Sean M. Davis (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	37
15:30 - 15:45	Tropospheric Column Ozone Variability from Space: Results from the First Multi-instrument Intercomparison <i>Audrey Gaudel (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)</i>	38
15:45 - 16:00	Tropospheric Ozone Assessment Report: Tropospheric Ozone Observations – How Well Do We Know Tropospheric Ozone Changes? <i>David W. Tarasick (Environment and Climate Change Canada, Toronto, Canada)</i>	39
16:00 - 16:15	An Overview of the Fires, Asian, and Stratospheric Transport-Las Vegas Ozone Study (FAST-LVOS) <i>Andrew O. Langford (NOAA Earth System Research Laboratory, Chemical Sciences Division (CSD))</i>	40
16:15 - 16:30	Preliminary Results from GMD's Halocarbons and other Trace Gases Measurements on ATom <i>James W. Elkins (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))</i>	41
16:30 - 16:45	Ambient Air Measurements of Formaldehyde by Near-infrared Cavity Ring-down Spectroscopy <i>David Kim-Hak (Picarro Inc.)</i>	42
16:45	<i>Closing Remarks - Dr. James Butler, Director (NOAA/ESRL Global Monitoring Division)</i>	

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2018 GMAC and GMD Review Joint Session

- P-0 Evaluating the Impact of Baseline Ozone in California using Ozone-Sonde Measurements at Trinidad Head, CA (THD): Overview
Toshihiro Kuwayama (California Air Resources Board)
- P-1 Global Atmosphere Watch Programme: the Role of the National Programmes in Supporting the Global Value Chain
Oksana Tarasova (World Meteorological Organisation, Geneva, Switzerland)
- P-2 The Radon Measurement Programs at Cape Grim, Mauna Loa, and other Global Atmospheric Monitoring Sites
Alastair G. Williams (Australian Nuclear Science and Technology Organisation (ANSTO), Lucas Heights, Australia)
- P-3 NOAA and U.S. Department of Energy/Office of Science Cooperative Efforts in Barrow (Utqiagvik), Alaska
Mark Ivey (Sandia National Laboratories)
- P-4 Ozone, Aerosols and Carbon Gases at the Mt. Bachelor Observatory
James Laing (University of Washington)
- P-5 Black Carbon Mass Observations across Canada (2006-2015): Constraining on Regional Emissions in North America
Lin Huang (Environment and Climate Change Canada, Toronto, Canada)
- P-6 Aerosol Hygroscopicity during the Haze Red Alert Period in Winter 2016 at a Rural Site of the North China
Junying Sun (Chinese Academy of Meteorological Sciences, Key Laboratory of Atmospheric Chemistry of CMA, Beijing, China)
- P-7 Using SURFRAD Aerosol Optical Depth Measurements for Model Evaluation. A Study with FV3-GOCART and WRF-Chem and Their Assimilation Systems
Mariusz Pagowski (NOAA Earth System Research Laboratory, Global Systems Division (GSD))
- P-8 Ratios of Greenhouse Gas Emissions Observed over the Yellow Sea and the East China Sea
Lingxi Zhou (China Meteorological Administration, Chinese Academy of Meteorological Sciences, Beijing, China)
- P-9 TCCON Updates and Improvements to Precision Requirements
Coleen Roehl (California Institute of Technology)
- P-10 Engaging Agencies and the Public in Atmospheric Monitoring Observations Through Real-time Data Posting
Detlev Helmig (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado)
- P-11 The Importance of Ozone-sonde Quality Assurance and JOSIE-SHADOZ (2017)
Jacquelyn C. Witte (Science Systems and Applications, Inc. (SSAI))
- P-12 The Evolving Role of Space-based Measurements in a Global Carbon Monitoring System
Charles Miller (NASA Jet Propulsion Laboratory, California Institute of Technology)

Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks

- P-13 AirCore: The Gold Standard for Comparing Remote Sensing Observations to the Ground Network and the Capturing Changes in Stratospheric Circulation Changes
Colm Sweeney (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))
- P-14 Monitoring of Atmospheric Acetylene in the NOAA Global Greenhouse Gas Reference Network
Jacques Hueber (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado)
- P-15 Atmospheric Isoprene in the NOAA/INSTAAR Global Greenhouse Gas Reference Network
Jacques Hueber (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado)
- P-16 Spatial and Temporal Gradients in Atmospheric CO₂ and CO in the Los Angeles Megacity
Kristal R. Verhulst (NASA Jet Propulsion Laboratory, California Institute of Technology)
- P-17 Investigating Hydrocarbon Tracers for Anthropogenic CO₂ at Indianapolis, IN
Isaac Vimont (National Research Council Post-Doc)
- P-18 Estimating Uncertainties of GC/MS Analyses of Programmable Flask Package (PFP) Atmospheric Samples from the GGGRN North American Tower and Aircraft Programs
Benjamin R. Miller (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)

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Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks (continued)

- P-19 Untangling Greenhouse Gas Fluxes and Transport using ACT-America Observations
Sha Feng (Department of Meteorology and Atmospheric Science, The Pennsylvania State University)
- P-20 Recent Developments in Using Isotopic Measurements for Constraining Methane Sources and Sinks
Xin Lan (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-21 Recent GAW Activities of KMA
Yuwon Kim (Korea Meteorological Administration, Daebang-dong, Dongjak District, Republic of Korea)
- P-22 Systematic Differences in Global CO₂ Inverse Model Results
Benjamin Gaubert (National Center for Atmospheric Research (NCAR), Atmospheric Chemistry Observations and Modeling Laboratory)
- P-23 Methane Leak Detection and Sizing using Large Eddy Simulations (LES)
Kuldeep Prasad (National Institute of Standards and Technology (NIST))
- P-24 Development of ECCO's Regional Transport Model for Simulation of Atmospheric Greenhouse Gases at High Spatial and Temporal Resolution
Jinwoong Kim (Environment and Climate Change Canada, Toronto, Canada)
- P-25 Constraining Carbon Exchange Processes over North America by Joint Assimilation of Atmospheric CO₂ and δ¹³C
Ivar R. van der Velde (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-26 A Reanalysis of Inter-laboratory Comparisons as the Stable Isotope Lab at INSTAAR Switches to the JRAS-06 Realization of the VPDB Scale
Sylvia Englund Michel (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado)
- P-27 An Update on the WMO CO X2014A Scale
Andrew Croftwell (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-28 Successes and Challenges of Spectroscopic Based Techniques in Enteric Methane Measurements
Wilson Gichuhi (Department of Chemistry, Tennessee Tech University)
- P-29 Open-path Spectroscopy to an Airborne Retroreflector on a Quadcopter
Kevin Cossel (National Institute of Standards and Technology (NIST))
- P-30 Performance Validation of New High-precision CH₄ and CO₂ Analyzers Based on Optical Feedback Cavity Enhanced Absorption Spectroscopy
Israel Begashaw (LI-COR Biosciences)
- P-31 Estimation of Enteric Methane Emissions in Ruminants Using CO₂:CH₄ Ratio Obtained with a Wavelength-scanned Cavity Ring-down Spectrometer
Lahiru P Gamage (School of Environmental Studies, Tennessee Technological University)
- P-32 ¹³C and ¹⁸O Isotope Effects Resulting from High Pressure Regulation and CO₂ Cylinder Depletion
Matt C. Matthew (Airgas Specialty Gases)
- P-33 CO₂ Urban Synthesis and Analysis ("CO₂-USA") Network
Logan Mitchell (University of Utah)
- P-34 Investigating Methane Trends and Variability Using the GFDL-AM4 Model and NOAA GMD Observations
Jian He (Program in Atmospheric and Oceanic Sciences, Princeton University)
- P-36 Characterizing and Comparing Anthropogenic CH₄ Sources in the DJ Basin using Mobile Surveys
Chelsea Fougere (St. Francis Xavier University, Antigonish, Canada)
- P-37 Effects of Drought Conditions on CO₂ Flux in Semi-arid Chaparral Ecosystems.
Andrea Fenner (San Diego State University, Global Change Research Group)
- P-38 Sources and Variability of Air Toxics Downwind of an Oil and Natural Gas-producing Well Pad in a Residential Community
Ingrid Mielke-Maday (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)

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Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks (continued)

- P-39 Ground-truth Calibration for the VIIRS Nightfire Detector of Gas Flares
Mikhail Zhizhin (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)

Monitoring and Understanding Changes in Surface Radiation, Clouds, and Aerosol Distributions

- P-40 Volcanic Aerosol Optical Depths during the Post-Pinatubo Era, 1996-2018
Richard A Keen (University of Colorado, Department of Atmospheric and Oceanic Sciences)
- P-41 Use of Ground- and Space-based Visible Imagery with other Data for Model Evaluation and Assimilation
Steve Albers (Cooperative Institute for Research in the Atmosphere (CIRA), Colorado State University)
- P-42 Constraining Aerosol Properties with Ground-based Lidar and other Remote Sensing Techniques
John E. Barnes (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-43 Cloud Measurements with an All-sky Camera System for Investigating Long-term Variability of Cloud Properties at South Pole
Masataka Shiobara (National Institute of Polar Research (NIPR), Tokyo, Japan)
- P-44 Mutual Information Analysis of Aerosol-cloud interactions by Meteorological State over Oklahoma, U.S.
Ian Glenn (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-45 Black Carbon's Contribution to Aerosol Absorption Optical Depth in South Korea
Kara Lamb (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-46 NOAA Global Radiation Group Participation in International Comparisons Offering Traceable Calibration to World Solar Radiation Standards
Emiel Hall (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-47 Variability of UV at Sites Equipped with NIWA Spectrometer Systems for 20 Years or More
Patrick Disterhoft (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-48 Improvements in the Brewer Mark IV Spectrophotometer Ultraviolet AOD Retrievals
Scott Stierle (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-49 Shipboard Tilt Corrections for More Accurate Broadband Radiation Data
Chuck Long (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-50 Validation of the Stratospheric Aerosol and Gas Experiment-III (SAGE-III) Aerosol Data Product
Travis N. Knepp (Science Systems and Applications, Inc. (SSAI))
- P-51 Validation of the Stratospheric Aerosol and Gas Experiment III on the International Space Station (SAGE III/ISS) Science Data Ozone Product: Preliminary Results
Susan Kizer (Science Systems and Applications, Inc. (SSAI))
- P-52 Overview and Selected Results from the NOAA Federated Aerosol Network
Patrick Sheridan (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))
- P-53 Relating Chemical and Optical Aerosol Properties at Mauna Loa Observatory
Katy Sun (Science and Technology Corporation)
- P-54 Reconciling Evapotranspiration Partitioning Models with Evidence of Anomalously Low Isotopic Fractionation during Evaporation in Semi-arid Landscapes
Aleya Kaushik (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-55 Spatial Variations of Soil Temperature and its Environmental Controls across Eurasian Continent
Kang Wang (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado)

Guiding Recovery of Stratospheric Ozone and Other Topics

- P-56 A Lamina-based Approach for Interpreting Variability in Ozonesonde Vertical Profiles
Ken Minschwaner (New Mexico Institute of Mining and Technology)
- P-57 Analysis of Ozone Trends from NOAA's Newly Homogenized Ozonesonde Data Record
Patrick Cullis (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)

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Guiding Recovery of Stratospheric Ozone and Other Topics (continued)

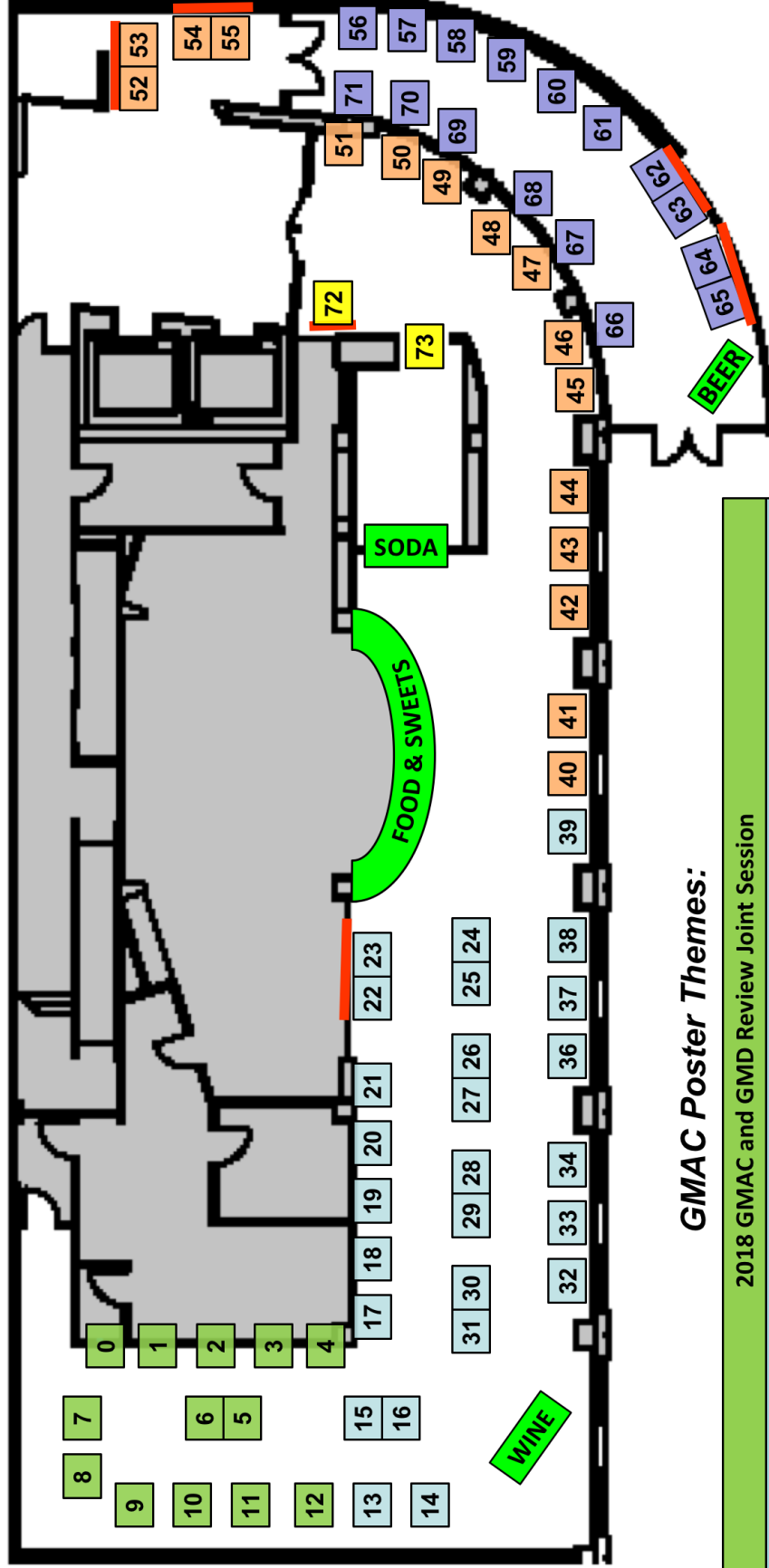
- P-58 Stratospheric Temperature Corrections and Improvement of Total Column Ozone Records in the NOAA Dobson Ozone Spectrophotometer Network
Glen McConville (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-59 Uncertainty Improvement Optimized using the GMI Model for Umkehr Ozone Profile Retrieval
Koji Miyagawa (Guest Scientist at NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))
- P-60 An Evaluation of C₁-C₃ Hydrochlorofluorocarbon (HCFC) Metrics: Lifetimes, Ozone Depletion Potentials, Radiative Efficiencies, Global Warming and Global Temperature Potentials
James Burkholder (NOAA Earth System Research Laboratory, Chemical Sciences Division (CSD))
- P-61 Chloroform Emissions Estimated with the CarbonTracker-Lagrange North American Regional Inversion Framework
Geoff Dutton (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))
- P-62 Using Observations of SF₆ to Examine Inter-annual Variations in Inter-hemispheric Exchange
Brad D. Hall (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD))
- P-63 Increased Propane Emissions from the United States over the Last Decade
Lei Hu (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-64 Using Carbonyl Sulfide to Explore Coastal Fog and Coast Redwood Interdependence
Timothy W. Hilton (University of California at Merced)
- P-65 NO_x Emissions from Switch Yard Locomotives Observed with the TRAX Air Quality Platform
Logan Mitchell (University of Utah)
- P-66 Advantages and Limitations of Measuring BTEX with a Commercial GC-PID System *In Situ*
Monica Madronich (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-67 One Year of AOD, Halogen Radicals, OVOCs, H₂O and NO₂ Measurements at Mauna Loa Observatory
Barbara Dix (University of Colorado, Department of Chemistry and Biochemistry)
- P-68 Toward a High Degree of Freedom Full Atmosphere Retrieval of BrO Profiles from MAX-DOAS Instruments on Remote Tropical Marine Mountaintops
Theodore Koenig (University of Colorado, Department of Chemistry and Biochemistry)
- P-69 Contrasting Behavior of Inert and Photochemically Reactive Gases during the August 21, 2017, Solar Eclipse at the Boulder Reservoir
Detlev Helmig (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado)
- P-70 Combining Observations and Multiple Models for an Improved Estimate of the Global Surface Ozone Distribution
Kai-Lan Chang (National Research Council Post-Doc)
- P-71 Changing Conditions in the Arctic: An Analysis of Trends in Observed Surface Ozone Conditions
Audra McClure-Begley (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)

Technology

- P-72 Online Inclusion of Chemical Modules Into NOAA's Next Generation Global Prediction System (NGGPS)
Li Zhang (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado)
- P-73 SOS ExplorerTM: Interactive Visualizations for Museums and Classrooms
Eric Hackathorn (NOAA Earth System Research Laboratory, Global Systems Division (GSD))

2018 GMAC Poster Session

May 22nd, 5:00 – 7:30pm



GMAC Poster Themes:

2018 GMAC and GMD Review Joint Session
Tracking Greenhouse Gases and Understanding Carbon Cycle Feedbacks
Monitoring and Understanding Changes in the Surface Radiation, Clouds, and Aerosol Distributions
Guiding Recovery of Stratospheric Ozone and Other Topics
Technology
Food and Drink