Tuesday Morning, May 17, 2016 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
**07:30 - 08:15** Morning Snacks - coffee, tea, fruit, bagels and donuts served

**Session 1** Welcome, Keynote Address & Highlights — Chaired by Russ Schnell

08:15 - 08:30 Welcome and Conference Overview
James H. Butler (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)

08:30 - 09:00 Keynote Address - Keeping Up the Standards: Building and Maintaining a Global Atmospheric Measurement Network
Ray F. Weiss (Scripps Institution of Oceanography, University of California at San Diego, La Jolla, CA)

09:00 - 09:15 In-service Aircraft for Global Monitoring: Status and Perspectives
Andreas Volz-Thomas (IAGOS-AISBL Forschungszentrum Jülich, Jülich, Germany)

09:15 - 09:30 Traceability of Measurements Within the Global Atmosphere Watch Programme: Results from the World Calibration Centre WCC-Empa
Christoph Zellweger (Swiss Federal Laboratories for Materials Science and Technology, Empa, Dübendorf, Switzerland)

09:30 - 09:45 Multiple Immediate Benefits of Emissions Mitigation
Pieter P. Tans (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)

**9:45 - 10:15** Morning Break

**Session 2** Carbon Cycle & Greenhouse Gases - Global Observations — Chaired by Ed Dlugokencky

10:15 - 10:30 Global Reconciliation of Land, Ocean, and River Carbon Fluxes
Laure Resplandy (Scripps Institution of Oceanography, University of California at San Diego, La Jolla, CA)

10:30 - 10:45 The Carbon Cycle Response to the 2015 El Niño
Andrew R. Jacobson (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

10:45 - 11:00 Space-based Observations of CO₂ with the NASA Orbiting Carbon Observatory-2 (OCO-2)
David Crisp (Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA)

11:00 - 11:15 Sensitivity of CO₂ Flux Inversions to the Temporal and Spatial Distribution of Observations
Brendan Byrne (University of Toronto, Toronto, Ontario, Canada)

11:15 - 11:30 The Impact of Meteorological Analysis Uncertainties on the Spatial Scales Resolvable in CO₂ Model Simulations
Saroja Polavarapu (Environment and Climate Change Canada, Toronto, Ontario, Canada)

11:30 - 11:45 Evidence that Palmer Station Antarctica Seasonal O₂ and CO₂ Cycles Understate Regional Marine Boundary Layer Means
Jonathan Bent (National Center for Atmospheric Research (NCAR), Earth Observing Laboratory, Boulder, CO)

11:45 - 12:00 Adventures with CO₂ at the Mt. Bachelor Observatory
Daniel Jaffe (University of Washington, Seattle, WA)

**12:00 - 13:00** Catered Lunch - Outreach Classroom GB-124 (pre-payment of $12.00 at registration)
Tuesday Afternoon, May 17, 2016 AGENDA
(Only presenter's name is given; please refer to abstract for complete author listing.)

• Session 3  Carbon Cycle & Greenhouse Gases - Methane — Chaired by John Miller

13:00 - 13:15  A Comprehensive Approach to Understanding Renewed Increase in Atmospheric CH₄
Ed Dlugokencky (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO) 12

13:15 - 13:30  Speculation on the Origin of Sub-baseline Excursions of CH₄ at Cape Grim
Zoe M. Loh (Commonwealth Scientific Industrial Research Organisation (CSIRO), Aspendale, VIC 3195, Australia) 13

13:30 - 13:45  Cold Season Emissions Dominate the Arctic Tundra Methane Budget on the North Slope of Alaska
Walter Oechel (San Diego State University, Global Change Research Group, San Diego, California) 14

13:45 - 14:00  No Significant Increase in Long-term CH₄ Emissions on North Slope of Alaska Despite Significant Increase in Air Temperature
Colm Sweeney (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) 15

14:00 - 14:15  Studies of Carbon Isotopic Ratios (δ¹³C) of Methane in Atmospheric Air Samples from Different Locations in India
D. Kameswara Rao (Physical Research Laboratory, Navarangpura, Ahmedabad, India) 16

14:15 - 14:30  Top-down Estimate of Methane Emissions in California Using Aircraft Measurements During the CalNex 2010 Field Campaign
Yuyan Cui (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) 17

• 14:30 - 15:00  Afternoon Break

• Session 4  Carbon Cycle & Greenhouse Gases - Regional Observations — Chaired by Arlyn Andrews

15:00 - 15:15  Amazonian Atmospheric CO₂ Data Suggest Missing Moisture Sensitivity in Carbon-climate Models
Caroline Alden (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) 18

15:15 - 15:30  A Different View of Atmospheric Carbon Monitoring
Jeremy Dobler (Exelis, Inc., Boulder, CO) 19

15:30 - 15:45  High-accuracy, High-precision, High-resolution, Source-specific Monitoring of Urban Greenhouse Gas Emissions? Results to Date from INFLUX
Jocelyn Turnbull (GNS Science, National Isotope Centre, Lower Hutt, New Zealand) 20

15:45 - 16:00  Gradients of Column CO₂ Across North America from Aircraft and Tall Tower Measurements in the NOAA/ESRL Global Greenhouse Gas Reference Network
Xin Lan (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) 21

16:00 - 16:15  Gross Uptake of Carbon in the U.S. Is Largest in the Midwest Region
Timothy W. Hilton (University of California at Merced, Merced, CA) 22

16:15 - 16:30  Meteorological and Greenhouse Gas Measurements for the Characterization of Errors in Mesoscale Carbon Inversions
Thomas Lauvaux (The Pennsylvania State University, University Park, PA) 23

16:30 - 16:45  Diurnal and Seasonal Variations in the Sources of Anthropogenic CO₂ Emissions Over Two Years in the Los Angeles Megacity from Atmospheric Measurements
Sally Newman (California Institute of Technology, Pasadena, CA) 24

• 17:00 - 20:00  Poster Session (DSRC Cafeteria) with appetizers and refreshments
**Wednesday Morning, May 18, 2016 AGENDA**

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- **07:00**  
  Registration Opens in GC-402 - lunch orders collected at registration table
- **07:30 - 08:15**  
  Morning Snacks - coffee, tea, fruit, bagels and donuts served

**Session 5**  
Global Radiation & Aerosols — Chaired by Allison McComiskey

- **08:15 - 08:30**  
  Relationships Amongst Lower Tropospheric and Column-averaged Aerosol Properties and Composition Measured at the Co-located Appalachian State University NOAA and NASA Monitoring Sites - What Do They Tell Us?  
  James Patrick Sherman (Appalachian State University, Department of Physics and Astronomy, Boone, NC)
- **08:30 - 08:45**  
  A Comprehensive Climatology of Arctic Aerosol Properties on the North Slope of Alaska  
  Jessie Creamean (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
- **08:45 - 09:00**  
  Gaseous Elemental Mercury Measurements at GMD Barrow and the 2015 Arctic GEOTRACES Cruise to the North Pole  
  Steve Brooks (University of Tennessee Space Institute, Tullahoma, TN)
- **09:00 - 09:15**  
  Observations, Ray-tracing, and Data Assimilation in the Assessment of Aerosols  
  Steven Albers (Cooperative Institute for Research in the Atmosphere (CIRA), Colorado State University, Fort Collins, CO)
- **09:15 - 09:30**  
  Analysis of the Diurnal Cycle of Cloud Effects on the Surface Radiation Budget of the SURFRAD Network  
  Charles N. Long (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
- **09:30 - 09:45**  
  A Long-term Study of Aerosol–Cloud Interactions and Their Radiative Effect at a Mid-latitude Continental Site Using Ground-based Measurements  
  Elisa T. Sena (Institute of Physics, University of São Paulo, São Paulo, Brazil)

**9:45 - 10:15**  
Morning Break

**Session 6**  
Halocarbons & Other Trace Gases — Chaired by Jim Elkins

- **10:15 - 10:30**  
  On the Uneven Decline of Atmospheric CFC-11: Bumps in the Road to Ozone Recovery or Variations in Atmospheric Transport and/or Loss?  
  Stephen A. Montzka (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)
- **10:30 - 10:45**  
  Sulfur Hexafluoride Lifetime Adjustment Based on Measured Loss in the Stratospheric Polar Vortex  
  Eric Ray (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
- **10:45 - 11:00**  
  Variabilities of Atmospheric HCFCs and HFCs Over the United States and Their Implied Emissions for the Years of 2008 – 2014  
  Leilu Hu (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
- **11:00 - 11:15**  
  Tropospheric Observations of CFC-114 and CFC-114a  
  Johannes C. Laube (University of East Anglia, School of Environmental Sciences, Norwich, United Kingdom)
- **11:15 - 11:30**  
  Histories of Halogenated Strong Greenhouse Gases from Ice Cores, Deep Firm and Air Archive Records  
  William T Sturges (University of East Anglia, School of Environmental Sciences, Norwich, United Kingdom)
- **11:30 - 11:45**  
  Sources and Abundance of Inorganic Bromine and Iodine in the Tropical Transition Layer: Constraints from Recent DOAS Aircraft Observations of Bromine Oxide (BrO) and Iodine Oxide (IO)  
  Rainer Volkamer (University of Colorado, Department of Chemistry and Biochemistry, Boulder, CO)
- **11:45 - 12:00**  
  N2O Emissions Estimated with the Carbon Tracker Lagrange North American Regional Inversion Framework  
  Cynthia Nevison (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

**12:00 - 13:00**  
Catered Lunch - Outreach Classroom GB-124 (pre-payment of $12.00 at registration)
### Wednesday Afternoon, May 18, 2016 AGENDA
(Only presenter's name is given; please refer to abstract for complete author listing.)

**Session 7**  
**Ozone & Water Vapor — Chaired by Sam Oltmans**

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| 13:00 - 13:15 | SPARC Water Vapour Assessment II  
Karen H. Rosenlof (NOAA Earth System Research Laboratory, Chemical Sciences Division (CSD), Boulder, CO) | 38   |
| 13:15 - 13:30 | Recent Divergences in Stratospheric Water Vapor Measurements by Aura MLS and Frost Point Hygrometers  
Dale F. Hurst (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) | 39   |
| 13:30 - 13:45 | Do Stratospheric Ozone Measurements Show Large Tropical Width Changes?  
Sean Davis (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) | 40   |
| 13:45 - 14:00 | Origins of Filaments in Boulder Ozonesonde Data  
Irina Petropavlovskikh (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) | 41   |
| 14:00 - 14:15 | Balloon-borne Ozonesonde Profile Measurements at South Pole Station, Antarctica During the 2015 Ozone Hole  
Bryan J. Johnson (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO) | 42   |
| 14:15 - 14:30 | Long-term Trends of Tropospheric Ozone Over North America and Southeast Asia  
Audrey Gaudel (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) | 43   |

**14:30 - 15:00**  
**Afternoon Break**

**Session 8**  
**Carbon Cycle & Greenhouse Gases - Oil & Gas — Chaired by Gabrielle Petron**

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| 15:00 - 15:15 | Methane Emissions from the 2015 Aliso Canyon Blowout in Los Angeles, CA  
Thomas B. Ryerson (NOAA Earth System Research Laboratory, Chemical Sciences Division (CSD), Boulder, CO) | 44   |
| 15:15 - 15:30 | Methane Emissions from the Denver-Julesburg Basin of Colorado Estimated by Bayesian Inversion with Five Datasets  
Wayne M. Angevine (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) | 45   |
| 15:30 - 15:45 | Have We Detected Large Increases in U.S. Emissions of CH₄ From Oil and Gas Production?  
Lori Bruhwiler (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO) | 46   |
| 15:45 - 16:00 | Results from a Survey of Global Natural Gas Flaring from Visible Infrared Imaging Radiometer Suite Data  
Christopher D. Elvidge (NOAA National Centers for Environmental Information (NCEI), Boulder, CO) | 47   |
| 16:00 - 16:15 | Methane Emissions from Natural Gas Production in Pennsylvania: Aircraft Model Comparison  
Zachary Barkley (The Pennsylvania State University, University Park, PA) | 48   |
| 16:15 - 16:30 | A Reversal of Long-term Global Trends in Atmospheric Ethane and Propane from North American Oil and Natural Gas Emissions  
Detlev Helmig (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO) | 49   |
| 16:30 - 16:45 | A Quantification of Methane Emissions from Oil and Natural Gas Extraction Regions in the U.S. and a Comparison to Previous Studies  
Jeff Peischl (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO) | 50   |

**16:45**  
**Closing Remarks - Dr. James Butler, Director (NOAA/ESRL Global Monitoring Division)**
Tuesday, May 17, 2016 17:00 - 20:00 POSTER SESSION AGENDA
(Only presenter's name is given; please refer to abstract for complete author listing.)

• **Carbon Cycle & Greenhouse Gases**

P-1 Separating Methane Emissions From Biogenic Sources And Natural Gas by Vertical Column Enhancements of Ammonia, Ethane, and Methane Along the Colorado Front Range

  Randall Chiu (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-2 Tower-based Measurements of CH$_4$ Dry Mole Fraction and Isotopic Ratio (^{13}CH$_4$/^{12}CH$_4$) in the Northeastern Pennsylvania Marcellus Shale Gas Region

  Natasha Miles (The Pennsylvania State University, University Park, PA)

P-3 Aircraft-based Quantification of Individual Oil and Gas Facilities' Methane Emissions

  Stefan Schwietzke (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-4 Global Inventory of Natural Gas Molecular and Isotopic Compositions

  Owen A. Sherwood (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

P-5 Methane and Nonmethane Hydrocarbons in the Denver-Julesburg Basin of Colorado: from Source Signatures to Regional Impacts

  Gabrielle Petron (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-6 CO$_2$, CO, and CH$_4$ Surface *In Situ* Measurement Network in Support of the Indianapolis FLUX (INFLUX) Experiment

  Scott Richardson (The Pennsylvania State University, University Park, PA)

P-7 Stable Isotopic Analysis of Carbon Monoxide During Two Summers at Indianapolis, Indiana

  Isaac Vimont (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

P-8 Spatiotemporal Patterns of Urban Trace Gases and Pollutants Observed with a Light Rail Vehicle Platform in Salt Lake City, UT

  Logan Mitchell (University of Utah, Salt Lake City, UT)

P-9 Imprint of Urban CO$_2$ Emissions Detected by OCO-2 Observations of Total Column CO$_2$

  Xinxin Ye (The Pennsylvania State University, University Park, PA)

P-10 Atmospheric Carbon and Transport – America: A NASA Earth Venture Mission Dedicated to Improving the Accuracy, Precision and Resolution of Atmospheric Inverse Estimates of CO$_2$ and CH$_4$ Sources and Sinks

  Scott Richardson (The Pennsylvania State University, University Park, PA)

P-11 Using *In Situ* CO$_2$ Measurements to Help Understand GOSAT and OCO-2 Column CO$_2$ Retrievals

  David F. Baker (Cooperative Institute for Research in the Atmosphere (CIRA), Colorado State University, Fort Collins, CO)

P-12 A Multi-sensor Approach to Cloud and Aerosol Detection in Support of OCO-2 XCO$_2$ Retrieval Validation

  Heather Q. Cronk (Cooperative Institute for Research in the Atmosphere (CIRA), Colorado State University, Fort Collins, CO)

P-13 Toward Continuous Monitoring of Climate Pollutant Emissions at Site- to Regional- Scales

  Caroline Alden (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-14 Reconstructing Urban Fossil Fuel Carbon Dioxide Emissions Utilizing the Radiocarbon Composition of Tree Rings from the Wellington Region, New Zealand

  Bella Ansell (GNS Science, National Isotope Centre, Lower Hutt, New Zealand)

P-15 Influence of Subgrid Terrain Variability on Simulated Planetary Boundary Layer Depths in Large-scale Transport Models

  Gert-Jan Duine (University of Virginia, Charlottesville, VA)

P-16 Sensitivity and Uncertainty Analysis of Physical Parameterization and Initial Conditions on Meteorological Variables and CO$_2$ Mole Fractions

  Liza Diaz-Isaac (The Pennsylvania State University, University Park, PA)

P-17 Assimilation of GOSAT XCO$_2$ Retrievals in CarbonTracker

  Jinwoong Kim (Yonsei University, Department of Atmospheric Sciences, Seoul, South Korea)

P-18 A Re-examination of the WMO X2007 CO$_2$ Calibration Scale

  Brad D. Hall (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)
Tuesday, May 17, 2016 17:00 - 20:00 POSTER SESSION AGENDA
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- **Carbon Cycle & Greenhouse Gases (continued)**
  
P-19 Ensuring High-quality Data from NOAA’S Cooperative Global Air Sampling Network  
  *Molly J. Crotwell (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)*

P-20 Comparison of CH$_4$ Monitoring Methods at GEOSummit  
  *Dominique Colegrove (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)*

P-21 Characteristics of Atmospheric CO$_2$ and CH$_4$ at the Shangdianzi Regional Background Station in China  
  *Miao Liang (China Meteorological Administration, Centre for Atmosphere Watch and Services, Meteorological Observation Centre, Beijing, China)*

P-22 A Compact Cavity Ring-down Spectroscopy Analyzer for In Situ Measurements of Carbon Dioxide, Methane, and Water Vapor  
  *Milos Markovic (Picarro Inc, Santa Clara, CA)*

P-23 Integrated Path Differential Absorption (IPDA) LIDAR Measurement of CO$_2$, CH$_4$, and H$_2$O  
  *Gerd A. Wagner (National Institute of Standards and Technology (NIST), Physical Measurement Laboratory, Quantum Electromagnetics Division, Boulder, CO)*

P-24 An Ultra-stable and High-precision N$_2$O/CO Analyzer for Continuous Ambient Monitoring  
  *Graham Leggett (Picarro Inc, Santa Clara, CA)*

P-25 Atmospheric Measurements of Methane, Isotopic Methane, and Ethane Using a Cavity Ring-down Spectrometer  
  *Iain Green (Picarro Inc, Santa Clara, CA)*

P-26 Adaptation of a Commercial Greenhouse Gas Analyzer for Expanded Altitude Range  
  *Kathryn McKain (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)*

P-27 Characterization of a Quantum Cascade-Tunable Infrared Laser Differential Absorption Spectrometer (QC-TILDAS) for Atmospheric Ethane and Methane Field Measurements  
  *Ingrid Mielke-Maday (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)*

P-28 Global Warming Is Real - Highlights of the Data  
  *Phil Morris (Retired Molecular Biologist and High School Science Teacher, Edmond, OK)*
Tuesday, May 17, 2016 17:00 - 20:00 POSTER SESSION AGENDA (Continued)
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• Ozone & Water Vapor

P-29 Uncertainties in Total Ozone Retrievals from Dobson Zenith Sky Observations
  Koji Miyagawa (Science and Technology Corporation, Boulder, CO)

P-30 Centuries of Data: the U.S. Dobson Station Network Reevaluated
  Robert D. Evans (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-31 Long-lived Stratospheric Ozone Depletion Over The South Pole During Spring 2015
  Glen McConville (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-32 Total Column Water Vapor from OCO-2
  Robert R. Nelson (Colorado State University, Department of Atmospheric Science, Fort Collins, CO)

P-33 Introducing the EXCITE Project: EXploring Stratospheric Composition, Chemistry and Circulation with Innovative TTechniques
  Emma Leedham Elvidge (University of East Anglia, School of Environmental Sciences, Norwich, United Kingdom)

P-34 Intercomparison of Total Ozone Column Observed by Pandora and Brewer Spectrophotometers at Taipei
  Kun-Wei Lin (Central Weather Bureau, Observation Division, Taipei, Taiwan)

P-35 First Look at the NOAA Aircraft-based Tropospheric Ozone Climatology in Colorado
  Mark Leonard (Science and Technology Corporation, Boulder, CO)

P-36 Analysis, Determination and Reprocessing Methods Used For Homogenization of the NOAA Long-term ECC Ozonesonde Time Series
  Chance W. Sterling (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-37 The First Reprocessing of SHADOZ (Southern Hemisphere ADditional OZonesondes) Data Records
  Jacquelyn Witte (Science Systems and Applications, Inc. (SSAI), Lanham, MD)

P-38 Results from Balloon Launches at the MaïDo Observatory On RéUnion Island
  Karen H. Rosenlof (NOAA Earth System Research Laboratory, Chemical Sciences Division (CSD), Boulder, CO)

P-39 Ozone and Other Trace Gases in the Tropical Tropopause Layer Over the Pacific Ocean
  Eric Hintsa (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-40 Investigating Below-cloud Rain Evaporation and Boundary Layer Moisture Recycling by Coupling Stable Water Isotopes in Vapor and Precipitation to Raindrop Size Distributions at the Boulder Atmospheric Observatory Site
  Aleya Kaushik (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-41 Geographical and Temporal Differences in NOAA Observed Surface Ozone in the Arctic
  Audra McClure-Begley (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
Tuesday, May 17, 2016 17:00 - 20:00 POSTER SESSION AGENDA (Continued)
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• Halocarbons

P-42 Using Box Models to Quantify Zonal Distributions and Surface Emissions of Halocarbons in the Background Atmosphere
   James W. Elkins (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)

P-43 Halogenated Trace Gases and Volatile Organic Compounds at the Global Atmospheric Watch Observatory
   Schneefernerhaus/Zugspitze, Germany
   Wei Wang (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

P-44 GMD’s GC/MS Analytical System for Preconcentration of Environmentally Relevant Species (PERSEUS)
   Benjamin R. Miller (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-45 Infrared Spectra and Radiative Efficiencies of Atmospherically Persistent Perfluoroamines
   François Bernard (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

• Radiation

P-46 Evaluation of Environmental and Logistic Conditions at Yushan Station In Taiwan for an Outdoor Radiation Calibration Facility
   Cheng-Chien Huang (Central Weather Bureau, Observation Division, Taipei, Taiwan)

P-47 The NOAA Global Monitoring Division’s UV Monitoring Networks: Update on Antarctica and NEUBrew
   Scott Stierle (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-48 Synthesis of Aerosol Physical, Chemical, and Radiative Properties from Various Sources: Consistency and Closure
   Hagen Telg (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-49 Pioneering Detector Technology and Architecture Used in a Next Generation Pyranometer Yielding Negligible Thermal Offsets and Sub-second Response
   Will Beuttell (EKO Instruments USA Inc, San Jose, CA)

P-50 Annual Evolution of Surface Energy Flux at Summit, Greenland
   Nathaniel Miller (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-51 A Method to Correct Longwave Radiation Measurements Corrupted by a Bad Thermistor
   John Augustine (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)
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• Aerosols

P-52 Aerosol Climatology at Mt. Lulin: AERONET and In Situ Measurements
Sheng-Hsiang Wang (National Central University, Department of Atmospheric Sciences, Chung-Li, Taiwan)

P-53 Multi-year Measurements of Aerosols at Jaipur, a Site in Northwestern India
Sunita Verma (Birla Institute of Technology Mesra, Ranchi, India)

P-54 Mitigation of Particulate Matter Problem Caused by Vegetation Fires in Thailand
Sirirat Yensong (Faculty of Engineering and Environment, University of Southampton, Southampton, United Kingdom)

P-55 Source Influences on the Aerosol Size Distribution and Cloud Condensation Nucleus (CCN) Activity at the Resolute Bay Ground Site in Canada
Sangeeta Sharma (Environment and Climate Change Canada, Toronto, Ontario, Canada)

P-56 A Comparison of Inlet Setups at Storm Peak Laboratory
Andrew Kumler (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-57 Design of a Novel Aircraft Open-path Cavity Ring-down Spectrometer
Gabriela Adler (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-58 A “MAGIC” Water Condensation Particle Counter
Patricia B. Keady (Aerosol Devices Inc., Fort Collins, CO)

P-59 Boundary Layer Observations at Mauna Loa Observatory, Hawaii
John E. Barnes (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-60 The Calbuco Chronicle: Volcanic Aerosols in the Post-Pinatubo Stratosphere
Richard A. Keen (University of Colorado, Emeritus, Department of Atmospheric and Oceanic Sciences, Boulder, CO)

• Meteorology and Partner Stations

P-61 Environmental Change in Barrow, Alaska Resulting from a 2015 Record Heat Wave
Diane Stanitski (NOAA Earth System Research Laboratory, Global Monitoring Division (GMD), Boulder, CO)

P-62 Seasonal and Latitudinal Variations of Surface Fluxes and Meteorological Variables at Arctic Terrestrial Sites
Andrey A. Grachev (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-63 Definition of Summer Monsoon Index for Vietnam Region
Mau Nguyen-Dang (Vietnam Institute of Meteorology, Hydrology, and Climate Change, Hanoi, Vietnam)

P-64 ARM North Slope of Alaska Research Facilities
Jasper Hardesty (Sandia National Laboratories, Albuquerque, NM)

P-65 The Pikes Peak Observatory
Mark Miesch (National Center for Atmospheric Research (NCAR), High Altitude Observatory, Boulder, CO)

Michael O’Neill (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-67 Normalized Distribution Function: A Statistical Analysis of Surface Temperature for the Investigations for Seismic Precursor During the Large Ferndale, California Earthquake (M=6.8)
Rahul Shrivastava (Space Science Laboratory, Department of Physics and Electronics, Barkatullah University, Bhopal, India)

• Technology

P-68 SOS Explorer™: Interactive Visualizations for Museums and Classrooms
Eric Hackathorn (NOAA Earth System Research Laboratory, Global Systems Division (GSD), Boulder, CO)