Tuesday Morning, May 20, 2014 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 - 08:30  Morning Snacks - Coffee, tea, fruit, bagels and donuts served

• Session 1  Welcome, Keynote Address & Highlights — Chaired by James Butler

08:30 - 08:45  Welcome and Conference Overview
  James H. Butler (NOAA Earth System Research Laboratory, Boulder, CO)
08:45 - 09:15  Atmospheric Signatures of Changing Global Biogeochemistry
  Ralph Keeling (Scripps Institution of Oceanography, La Jolla, CA)
09:15 - 09:30  The Earth Is Round: Some Elements of a Sustainable Society
  Pieter Tans (NOAA Earth System Research Laboratory, Boulder, CO)
09:30 - 09:45  Continued Permafrost Warming on the Arctic Slope of Alaska, 2014 Update
  Gary Clow (United States Geological Survey (USGS), Boulder, CO)
09:45 - 10:00  International Arctic Systems for Observing the Atmosphere (IASOA) – A Portal for Discovery, a Platform for Pan-Arctic Collaboration
  Sandra Starkweather (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

• 10:00 - 10:30  Morning Break

• Session 2  Carbon Cycle & Greenhouse Gases - Measurements — Chaired by Arlyn Andrews

10:30 - 10:45  Detection and Quantification of Urban Greenhouse Gas Emissions: Ground-based Results of the INdianapolis FLUX (INFLUX) Experiment
  Natasha Miles (The Pennsylvania State University, University Park, PA)
10:45 - 11:00  Partitioning of Urban Fossil Fuel CO₂ Emissions by Source Sector: Results from the INdianapolis FLUX (INFLUX) Experiment
  Jocelyn Turnbull (GNS Science, New Zealand, and Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
11:00 - 11:15  Amazon Basin-wide Fluxes of CO₂ and CH₄ from Aircraft Vertical Profiles
  John B. Miller (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
11:15 - 11:30  Seasonality and Trends of Atmospheric Transport Events to Summit, Greenland Derived from Long-term Non-methane Hydrocarbon Observations
  Chelsea Thompson (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)
11:30 - 11:45  Historic European Non-CO₂ Atmospheric Greenhouse Gas Records: Harmonization and Uncertainty Assessment
  Samuel Hammer (University of Heidelberg, Institut für Umweltphysik, Heidelberg, Germany)
11:45 - 12:00  A Half-century Record of State-by-State Changes in Fossil Fuel Carbon Emissions and Corresponding Isotope Ratios in the United States
  T.J. Blasing (Independent Scholar, Knoxville, TN)

• 12:00 - 13:00  Catered Lunch - Outreach Classroom GB-124 (pre-payment of $12.00 at registration)
## Tuesday Afternoon, May 20, 2014 AGENDA

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

### Session 3  Carbon Cycle & Greenhouse Gases - Satellites & Modeling — Chaired by Ed Dlugokencky

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<tr>
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<tbody>
<tr>
<td>13:00 - 13:15</td>
<td>The Ability of Satellite-based CO₂ Measurements to Constrain Carbon Cycle Science: From Greenhouse Gases (GHG) Observing SATellite (GOŠAT) to Orbiting Carbon Observatory (OCO-2)</td>
<td>Christopher O’Dell (Colorado State University, Department of Atmospheric Science, Fort Collins, CO)</td>
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<tr>
<td>13:15 - 13:30</td>
<td>Launch and Early Operations of the National Aeronautics &amp; Space Administration (NASA) Orbiting Carbon Observatory-2</td>
<td>David Crisp (California Institute of Technology, Jet Propulsion Laboratory, Pasadena, CA)</td>
</tr>
<tr>
<td>13:30 - 13:45</td>
<td>Validation of Total Carbon Column Observing Network (TCCON) Observations of CO₂/CH₄/CO at Sodankylä Using AirCore</td>
<td>Huilin Chen (Centre for Isotope Research, University of Groningen, Groningen, Netherlands)</td>
</tr>
<tr>
<td>13:45 - 14:00</td>
<td>Constraining Fossil Fuel CO₂ Emissions with Joint Assimilation of Atmospheric CO₂ and δ¹³CO₂ Measurements</td>
<td>Sourish Basu (NRC Post-Doc &amp; NOAA Earth System Research Laboratory, Boulder, CO)</td>
</tr>
<tr>
<td>14:00 - 14:15</td>
<td>CarbonTracker-Lagrange: A New Tool for Regional- to Continental-scale Flux Estimation</td>
<td>Arlyn E. Andrews (NOAA Earth System Research Laboratory, Boulder, CO)</td>
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<tr>
<td>14:15 - 14:30</td>
<td>Estimation of the Permafrost Carbon Feedback Using The SiBCASA Terrestrial Carbon Cycle Model</td>
<td>Elchin Jafarov (National Snow and Ice Data Center (NSIDC), Boulder, CO)</td>
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### Session 4  Aerosols — Chaired by Elisabeth Andrews

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<td>Comparison of Aerosol Absorption Optical Depth from Remote-sensing and In Situ Measurements</td>
<td>John A. Ogren (NOAA Earth System Research Laboratory, Boulder, CO)</td>
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<td>15:30 - 15:45</td>
<td>Constraining Global Models of Black Carbon (BC) Aerosol with Pole-to-Pole Observations</td>
<td>Joshua Schwarz (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)</td>
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<td>15:45 - 16:00</td>
<td>Can We Characterize Aerosol Type Using Aerosol Optical Properties?</td>
<td>Lauren Schmeisser (Universiteit van Amsterdam &amp; NOAA Earth System Research Laboratory, Boulder, CO)</td>
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<td>16:00 - 16:15</td>
<td>A Small, Sensitive, Light-weight, and Disposable Aerosol Spectrometer for Balloon and Unmanned Aerial Vehicle Applications</td>
<td>Hagen Telg (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)</td>
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<td>16:15 - 16:30</td>
<td>Biomass Burning at Cape Grim: Using Modeling to Explore a Possible Urban Influence on Plume Photochemistry and Composition</td>
<td>Sarah J. Lawson (Commonwealth Scientific Industrial Research Organization (CSIRO), Marine and Atmospheric Research, Aspendale, Australia)</td>
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<td>Aerosols at Mauna Loa Observatory (MLO) – Spring 2001, Versus Spring and Fall, 2011</td>
<td>Thomas A. Cahill (University of California at Davis, Davis, CA)</td>
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### 14:45 - 15:15  Afternoon Break

### Session 4  Aerosols — Chaired by Elisabeth Andrews

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### 17:00 - 20:00  Poster Session (DSRC Cafeteria) with appetizers and refreshments
**Wednesday Morning, May 21, 2014 AGENDA**

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

- **07:00 - 08:30**  
  Registration & Morning Snacks - Coffee, tea, fruit, bagels and donuts served

- **Session 5**  
  Ozone & Water Vapor — Chaired by Samuel Oltmans
  
  08:30 - 08:45  
  The Alpha Jet Atmospheric EXperiment (AJAX): Three Years of Airborne Ozone and Greenhouse Gas Measurements Over California and Nevada  
  Emma L. Yates (National Aeronautics & Space Administration (NASA) Ames Research Center, Atmospheric Science Branch, Moffett Field, CA)

  08:45 - 09:00  
  An Overview of the 2013 Las Vegas Ozone Study (LVOS)  
  Andrew Langford (NOAA Earth System Research Laboratory, Boulder, CO)

  09:00 - 09:15  
  Source Distribution of Elevated Ozone in the Northern Colorado Front Range  
  Detlev Helmig (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

  09:15 - 09:30  
  Past Changes in the Vertical Distribution of Ozone: The SFN Activity and Its Outcome  
  Karen H. Rosenlof (NOAA Earth System Research Laboratory, Boulder, CO)

  09:30 - 09:45  
  The Pandora Spectrometer System: $O_3$ and Multiple Other Species Measured Using a Small, Inexpensive Package  
  Irina Petropavlovskikh (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

  09:45 - 10:00  
  Observed Global and Regional Variation in Earth's Water Vapor: Focus on the Weather-climate Interface  
  John Forsythe (Colorado State University, Cooperative Institute for Research in the Atmosphere, Fort Collins, CO)

  10:00 - 10:15  
  Validation of Aura Microwave Limb Sounder Stratospheric Water Vapor Measurements by the NOAA Frost Point Hygrometer  
  Dale Hurst (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

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

- **Session 6**  
  Radiation — Chaired by Kathleen Lantz
  
  10:45 - 11:00  
  The National Ecological Observatory Network (NEON): Overview and Strategies for Radiation Measurements Across the Continent  
  Jeffrey Taylor (National Ecological Observatory Network (NEON), Boulder, CO)

  11:00 - 11:15  
  Evidence for the Long-term Stability of the Eppley Model PIR for Measurements of Broadband Infrared Measurements  
  Joseph Michalsky (NOAA Earth System Research Laboratory, Boulder, CO)

  11:15 - 11:30  
  Results of Second Outdoor Comparison Between Absolute Cavity Pyrgeometer (ACP) and InfRared Integrating Sphere (IRIS) Radiometer at Physikalisch-Meteorologisches Observatorium Davos (PMOD)  
  Ibrahim Reda (National Renewable Energy Laboratory (NREL), Golden, CO)

  11:30 - 11:45  
  Radiative Forcing of a Small-scale Wildfire Smoke Plume at the Surface, Atmosphere, and Top of Atmosphere (TOA) from Surface and Satellite Observations  
  John A. Augustine (NOAA Earth System Research Laboratory, Boulder, CO)

- **11:45 - 13:00**  
  Catered Lunch - Outreach Classroom GB-124 (pre-payment of $12.00 at registration)
**Wednesday Afternoon, May 21, 2014 AGENDA**

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

**Session 7**  
**Halocarbons & Non-Methane Hydrocarbons** — Chaired by James Elkins

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<tr>
<td>13:00 - 13:15</td>
<td>Recent Trends in Global Concentrations and Emissions of Hydrochlorofluorocarbons (HCFCs) and Hydrofluorocarbons (HFCs)</td>
<td>Steve Montzka (NOAA Earth System Research Laboratory, Boulder, CO)</td>
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<td>13:15 - 13:30</td>
<td>Atmosphere-based “Top-down” Emission Estimates of 1,1,1,2-Tetrafluoroethane (HFC-134a) and Chlorodifluoromethane (HCFC-22) for the United States (U.S.) Over Multiple Years</td>
<td>Lei Hu (NRC Post-Doc &amp; NOAA Earth System Research Laboratory, Boulder, CO)</td>
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<td>13:30 - 13:45</td>
<td>European Emissions of Chlorodifluoromethane (HCFC-22) Based on High Frequency Atmospheric Measurements and a Bayesian Inversion Method</td>
<td>Michela Maione (University of Urbino, Department of Basic Sciences and Foundations, Urbino, Italy)</td>
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<td>13:45 - 14:00</td>
<td>Measurements of Bromine Oxide, Iodine Oxide and Oxygenated Hydrocarbons in the Tropical Free Troposphere from Research Aircraft and Mountaintops</td>
<td>Rainer Volkamer (Cooperative Institute for Research in Environmental Sciences (CIRES), Department of Chemistry and Biochemistry, University of Colorado, Boulder, CO)</td>
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<td>14:00 - 14:15</td>
<td>A Seven-year (2006-2013) Record of NonMethane HydroCarbons (NMHC) in the Subtropical Marine Boundary Layer at the Cape Verde Atmospheric Observatory</td>
<td>Shalini Punjabi (The University of York, Department of Chemistry, Heslington, York, United Kingdom)</td>
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<td>14:15 - 14:30</td>
<td>Real-time Quantification and Geo-spatial Mapping of Volatile Organic Compounds (VOC) and SemiVolatile Organic Compounds (SVOC) by Tandem Mass Spectrometry</td>
<td>Ryan Bell (Applied Environmental Research Laboratories, Nanaimo, British Columbia, Canada)</td>
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**Session 8**  
**Oil & Gas Fields** — Chaired by Gabrielle Petron

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<td>15:15 - 15:30</td>
<td>Methane Emissions Estimates from Oil and Natural Gas Production Using Atmospheric Measurements</td>
<td>Anna Karion (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)</td>
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<td>15:30 - 15:45</td>
<td>Quantifying Relative Contribution of Natural Gas Fugitive Emissions to Total Methane Emissions in CO, UT, and TX Using Mobile Isotopic Methane Analysis Based on Cavity RingDown Spectroscopy (CRDS)</td>
<td>Chris W. Rella (Picarro Inc., Santa Clara, CA)</td>
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<td>15:45 - 16:00</td>
<td>Mapping Sources of Methane Emissions Over the Barnett Shale in Texas</td>
<td>Bill Hirst (Shell Global Solutions International BV, The Hague, The Netherlands)</td>
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<td>16:00 - 16:15</td>
<td>Measurements and Modeling of Greenhouse Gases and the Planetary Boundary Layer (PBL) for the Boston Metro Area and the Northeastern Megalopolis</td>
<td>Philip DeCola (Sigma Space Corporation, Lanham, MD)</td>
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<td>16:15 - 16:30</td>
<td>Modeling of Atmospheric Methane and Ozone in the Uintah Basin, UT: The Role of Oil and Gas Emissions, Chemistry and Transport</td>
<td>Ravan Ahmadov (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)</td>
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<td>16:30 - 16:45</td>
<td>Anatomy of Wintertime Photochemical Ozone Production: Uintah Basin, UT, 2013</td>
<td>Russ C. Schnell (NOAA Earth System Research Laboratory, Boulder, CO)</td>
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**16:45**  
Closing Remarks - Dr. James Butler, Director (NOAA/ESRL Global Monitoring Division)
Tuesday, May 20, 2014 17:00 - 20:00 POSTER SESSION AGENDA
(Only presenter's name is given; please refer to abstract for complete author listing.)

• International Stations & Partners

P-1 Halley – A Recently Established Global Atmospheric Watch (GAW) Global Atmospheric Research Station in Antarctica - Preliminary Results from Greenhouse Gas Measurements
  Neil Brough (British Antarctic Survey, Cambridge, United Kingdom)

P-2 Experimental Studies of Carbon Monoxide Based on Measurements in the Antarctic (Novolazarevskaya Station)
  Felix Kashin (Federal State Budgetary Institution Research and Production Association “Typhoon”, Obninsk, Russia)

P-3 The Dr. Neil Trivett Global Atmosphere Watch (GAW) Observatory at Alert, Nunavut: Program Highlights from a Decade of Collaborative Atmospheric Research
  Andrew Platt (Environment Canada, Climate Research Division, Atmospheric Science Technology Directorate, Science Technology Branch, Toronto, Ontario, Canada)

P-4 Comparison of NOAA Near-surface Temperatures and MODeRate-resolution Imaging Spectroradiometer (MODIS) Ice-Surface Temperatures (IST) at Summit, Greenland
  Thomas Mefford (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-5 Recent Measurements from the Cape Verde Atmospheric Observatory (CVAO)
  Shalini Punjabi (University of York, York, United Kingdom)

P-6 Long-term Measurements of Solar Radiation and Aerosol Optical Depth at Mt. Lulin (2,862m) in East Asia
  Sheng-Hsiang Wang (National Central University, Department of Atmospheric Sciences, Chung-Li, Taiwan)

P-7 CO₂, CH₄, and Stable Isotopes at Lulin and Dongsha Island, Taiwan
  Chang-Feng Ou-Yang (National Central University, Department of Atmospheric Sciences, Chung-Li, Taiwan)

• Radiation

P-8 A Miniature Upward-looking Radiometer for Balloon and Unmanned Aerial Vehicle (UAV) Use
  Ru-Shan Gao (NOAA Earth System Research Laboratory, Boulder, CO)

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

P-10 Brewer 131 Calibration at 4-corners New Mexico Environment Department Site: Measurement and Calibration Issues
  Patrick Disterhoft (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-11 Improved Quality Assurance Procedures for the Antarctic and U.S. Ultraviolet Monitoring Program
  Patrick Disterhoft (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

• Halocarbons

P-12 NOAA Global Monitoring Division SkyWisp
  Fred L. Moore (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-13 Recent Results from the Airborne Tropical Tropopause EXperiment (ATTREX) Over the Western Tropical Pacific
  Eric Hintsa (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-14 How Much Can We Learn About Nitrous Oxide Emissions from Background Sites and Simple Box Models?
  James W. Elkins (NOAA Earth System Research Laboratory, Boulder, CO)

P-15 Global Measurement of Nitrous Oxide and Its Stable Isotopes Using Cavity Ring-down Spectroscopy
  Amy Steiker (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

P-16 Improvement and Additions to the Halocarbons & Other Atmospheric Trace Species Group (HATS) Combined Data Sets
  Geoff Dutton (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-17 Atmosphere-based Estimates of Non-CO₂ Greenhouse Gas Emissions for the U.S. Derived from ¹³C CO₂
  Steve Montzka (NOAA Earth System Research Laboratory, Boulder, CO)
**Tuesday, May 20, 2014 17:00 - 20:00 POSTER SESSION AGENDA (Continued)**

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

- **Carbon Cycle & Greenhouse Gases**
  - P-18 What We Learn from Updates of NOAA’S Annual Greenhouse Gas Index (AGGI)
    - James H. Butler (NOAA Earth System Research Laboratory, Boulder, CO)
  - P-19 Environment Canada's Greenhouse Gases Measurement Program - Summary of Progress to 2014
    - Doug Worthy (Environment Canada, Toronto, Ontario, Canada)
  - P-20 A New Reference Scale for Measurements of Carbon Monoxide in the Atmosphere
    - Paul C. Novelli (NOAA Earth System Research Laboratory, Boulder, CO)
  - P-21 Meteorological Controls on the Diurnal Variability of Carbon Monoxide at Pinnacles, an East Coast Mountaintop Site in the CarbonTracker Observational Network
    - Stephan F. J. De Wekker (University of Virginia, Charlottesville, VA)
  - P-22 A Central Facility for Greenhouse Gas Analyses Within the Integrated Carbon Observation System (ICOS) Research Infrastructure
    - Daniel Rzesanke (Max Planck Institute (MPI) for Biogeochemistry, ICOS Flask & Calibration Laboratory (FCL), Jena, Germany)
  - P-23 Regional Carbon Cycle and Atmospheric Inversions in the Southeastern United States (U.S.) – Optimizing an Observational Network
    - Scott Richardson (The Pennsylvania State University, University Park, PA)
  - P-24 Bayesian Optimization of the Net Ecosystem Exchange (NEE) in Oregon Using a New CO₂ Observation Tower Network, Transport Modeling, and the Community Land Model
    - Andres Schmidt (Oregon State University, Corvallis, OR)
  - P-25 Quantification of Transport Errors in Regional CO₂ Inversions Using a Physics-based Ensemble of Weather Research & Forecast (WRF)-Chem Simulations
    - Liza I. Diaz Isaac (The Pennsylvania State University, Department of Meteorology, University Park, PA)
  - P-26 Comparing Modeled Column-average CO₂ to Greenhouse Gases Observing SATellite (GOSAT) Atmospheric CO₂ Observations from Space (ACOS) 3.4 XCO₂ Product
    - Andrew Schuh (Colorado State University, Cooperative Institute for Research in the Atmosphere (CIRA), Fort Collins, CO)
  - P-27 Improving CO₂ Air-sea Fluxes by Combining O₂ and CO₂ Data
    - Laure Resplandy (Scripps Institution of Oceanography, La Jolla, CA)
  - P-28 Estimating Fire Emissions Using Visible Infrared Imaging Radiometer Suite (VIIRS) Nightfire Data and the Fire INventory from NCAR (FINN)
    - Tom Oda (Colorado State University, Cooperative Institute for Research in the Atmosphere (CIRA), Fort Collins, CO)
  - P-29 Evidence of Causality Between the Atmospheric Concentration Levels of Carbon Dioxide and Temperature
    - Kevin F. Forbes (The Catholic University of America, Washington, DC)
  - P-30 As Methane Concentration Goes Up, Stable Isotopes of Methane Go Down: ¹³C Implicates a Microbial Source Across Latitudinal Gradients
    - Sylvia Englund Michel (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)
  - P-31 Comparison of In Situ and Discrete Sample Methane Monitoring at Summit, Greenland
    - Reed M. Terrell (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)

- **Oil & Gas Fields**
  - P-32 Top-down Constraint on Hydrocarbon Emissions in the Denver-Julesburg Oil and Natural Gas Basin
    - Gabrielle Petron (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)
  - P-33 Initial Results of a Natural Gas Methane Emissions Survey in California's Southern San Joaquin Valley
    - Marc L. Fischer (Lawrence Berkeley National Laboratory, Environmental Energy Technologies Division, Berkeley, CA)
  - P-34 Effect of Oil and Gas Development on Atmospheric Levels of Hydrocarbons and Tropospheric Ozone
    - So-Yun Kim (Fairview High School, Boulder, CO)
Tuesday, May 20, 2014 17:00 - 20:00 POSTER SESSION AGENDA (Continued)
(Only presenter's name is given; please refer to abstract for complete author listing.)

**Networks & Data Management**

P-35  Bridging the Work of Field Scientists and the Needs of Data Re-users  
Antonia Rosati (National Snow and Ice Data Center (NSIDC), Boulder, CO)

P-36  The National Ecological Observatory Network (NEON): Overview and Strategies for Managing Thousands of Simultaneous Measurements Across the Continent  
Jeffrey Taylor (National Ecological Observatory Network (NEON), Boulder, CO)

Michael SanClements (National Ecological Observatory Network (NEON), Boulder, CO)

P-38  Global Emissions Initiative's (GEIA) Vision for Improved Emissions Information  
Gregory J. Frost (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

**Aerosols**

P-39  Monitoring Aerosol Optical Depth During the Arctic Night: Development of a Lunar Photometer for Use at the NOAA Barrow Observatory  
James Wendell (NOAA Earth System Research Laboratory, Boulder, CO)

P-40  Results of Aerosol Hygroscopicity During The Two-Column Aerosol Project (TCAP) Campaign in the Frame of the NOAA Network  
John A. Ogren (NOAA Earth System Research Laboratory, Boulder, CO)

P-41  Black Carbon in the Arctic: In the Arctic Report Card  
Sangeeta Sharma (Environment Canada, Climate Research Division, Atmospheric Science Technology Directorate/Science & Technology Branch, Toronto, Ontario, Canada)

**Ozone & Water Vapor**

P-42  Observational Evidence for Incomplete Dehydration in the Tropical Tropopause Layer  
Andrew Rollins (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-43  The Stratospheric Water and OzOne Satellite Homogenized (SWOOSH) Data Set  
Sean Davis (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-44  Towards a Combined Infrared Atmospheric Sounding Instrument (IASI)/Tropospheric Emission Spectrometer (TES) Record of Ozone: Validation and First Results  
Hilke Oetjen (Joint Institute for Regional Earth System Science and Engineering (JIFRESSE) UCLA/Jet Propulsion Laboratory (JPL), Los Angeles, CA)

P-45  South Pole Ozonesonde Measurements During the 2013 Ozone Hole  
Bryan Johnson (NOAA Earth System Research Laboratory, Boulder, CO)

P-46  The Implications of Background \( \text{O}_3 \) Affecting the Setting and Attainment of the National Ambient Air Quality Standards (NAAQS) for Surface \( \text{O}_3 \)  
Samuel J. Oltmans (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)

P-47  Colorado Front Range Surface Ozone Characterization  
Audra McClure-Begley (Cooperative Institute for Research in Environmental Sciences (CIRES), University of Colorado, Boulder, CO)