

39th NOAA ESRL GLOBAL MONITORING ANNUAL CONFERENCE 2011

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

Tuesday Morning, May 17, 2011 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 & donuts served**
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| • Session 1 Introduction, Keynote Address, and Setting the Stage — Chaired by Russ Schnell | |
| 08:15 - 08:30 Welcome | - |
| <i>Jim Butler (NOAA Earth System Research Laboratory, Boulder, CO)</i> | |
| 08:30 - 09:00 Keynote Address - Outlook for Long-Term Fossil-Fuel Emissions | 1 |
| <i>David Rutledge (California Institute of Technology, Pasadena, CA)</i> | |
| 09:00 - 09:15 CO ₂ Emissions, Climate Change, and Human Development | 2 |
| <i>Pieter Tans (NOAA Earth System Research Laboratory, Boulder, CO)</i> | |
| 09:15 - 09:30 A New Global Greenhouse Gas Observation Initiative | 3 |
| <i>Bob Marshall (Earth Networks, Inc., Germantown, MD)</i> | |
| 09:30 - 09:45 How Observations of Atmospheric O ₂ Concentration Can Inform Our Understanding of Land and Ocean Processes in a Time of Global Change | 4 |
| <i>Ralph F. Keeling (Scripps Institution of Oceanography (SIO), University of California at San Diego, La Jolla, CA)</i> | |
| 10:15 - 10:30 Observational Constraints on U.S. Emissions of Climate-Active and Ozone-Depleting Trace Gases From NOAA Air Sampling Networks | 5 |
| <i>Steve Montzka (NOAA Earth System Research Laboratory, Boulder, CO)</i> | |
| 10:30 - 10:45 Review of Comprehensive Pole-To-Pole Airborne Survey of Greenhouse Gases | 6 |
| <i>James W. Elkins (NOAA Earth System Research Laboratory, Boulder, CO)</i> | |
| 10:45 - 11:00 National Institute for Environmental Studies (NIES) Monitoring of Atmospheric Halocarbons | 7 |
| <i>Yoko Yokouchi (National Institute for Environmental Studies, Tsukuba, Ibaraki, Japan)</i> | |
| 11:00 - 11:15 Highlights From the UC-Irvine Global Monitoring Program (1978-2010) | 8 |
| <i>I.J. Simpson (University of California at Irvine, Irvine, CA)</i> | |
| 11:15 - 11:30 Urban Ambient Mixing Ratios of Hydrochlorofluorocarbons in China | 9 |
| <i>Xuekun Fang (State Key Joint Laboratory for Environmental Simulation and Pollution Control, College of Environmental Sciences and Engineering, Peking University, Beijing, China)</i> | |
| 11:30 - 11:45 Long-Term Monitoring of Volatile Organic Compounds (VOCs) in the Free Troposphere Above the UK | 10 |
| <i>Shalini Punjabi (Department of Chemistry, University of York, York, United Kingdom)</i> | |

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• Session 3	<i>Aerosols & Atmospheric Radiation</i> — Chaired by John Ogren	
13:00 - 13:15	Lidar Remote Sensing of Stratospheric Aerosols and Comparison With Simulations From Whole Atmosphere Community Climate Model (WACCM)/Community Aerosol and Radiation Model for Atmospheres (CARMA) <i>Ryan Neely (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i>	11
13:15 - 13:30	Recent Observed Variations in Background Aerosol Optical Depth and Associated Direct Radiative Forcing Estimates <i>E.G. Dutton (NOAA Earth System Research Laboratory, Boulder, CO)</i>	12
13:30 - 13:45	Radiative Forcing Efficiency of the Fourmile Canyon Fire Smoke Plume - a Near-Perfect Ad Hoc Experiment <i>John A. Augustine (NOAA Earth System Research Laboratory, Boulder, CO)</i>	13
13:45 - 14:00	Organic Compositions of Baseline Marine Aerosol at Cape Grim, Australia <i>Melita Keywood (Commonwealth Scientific & Industrial Research Organization, Marine and Atmospheric Research, Aspendale VIC, Australia)</i>	14
14:00 - 14:15	Empirical Estimates of Cloud Condensation Nuclei (CCN) From Field Observations <i>Anne Jefferson (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i>	15
14:15 - 14:30	Decadal Trends in Observed Analytical Uncertainties for IMPROVE Elemental Data <i>Warren H. White (Crocker Nuclear Laboratory, University of California at Davis, Davis, CA)</i>	16
• 14:30 - 15:00	<i>Afternoon Break</i>	
• Session 4	<i>Ozone & Water Vapor</i> — Chaired by Irina Petropavlovskikh	
15:00 - 15:15	Update on Stratospheric Water Changes <i>Karen Rosenlof (NOAA Earth System Research Laboratory, Boulder, CO)</i>	17
15:15 - 15:30	Ozonesondes Show Record Low Stratospheric Ozone in the Arctic in 2011 <i>B. J. Johnson (NOAA Earth System Research Laboratory, Boulder, CO)</i>	18
15:30 - 15:45	Twenty-Five Years of Ozone Soundings at South Pole: An Assessment of Changing Loss Rates <i>Birgit Hassler (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i>	19
15:45 - 16:00	Measurement of Western U.S. Baseline Ozone From the Surface to the Tropopause and Assessment of Downwind Impact Regions <i>Owen Cooper (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i>	20
16:00 - 16:15	Variability in the Distribution of Ozone Over Land and Marine Regions in the Indian Region <i>S. Lal (Physical Research Laboratory, Ahmedabad, India)</i>	21
16:15 - 16:30	Long-Term Observations From 1982 to 2009 of Ozone in the Southern Ocean Marine Boundary Layer From Cape Grim, Tasmania 41°S <i>Melita Keywood (Commonwealth Scientific & Industrial Research Organization, Marine and Atmospheric Research, Aspendale VIC, Australia)</i>	22
16:30 - 16:45	Science Highlights at the Cape Verde Atmospheric Observatory (CVAO) <i>K.A. Read (National Centre for Atmospheric Science, University of York, York, United Kingdom)</i>	23
• 17:00 - 20:00	<i>Poster Session (DSRC Cafeteria) with appetizers & refreshments</i>	

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| • Session 5 | Carbon Cycle — Measurement Networks — Chaired by Jim Butler | |
| 08:15 - 08:30 | China Meteorological Administration's (CMA) Capability and Effort to Serve the “Pilot Low-Carbon Action at 5 Provinces and 8 Cities in China” and the Global Network
<i>Lingxi Zhou (Chinese Academy of Meteorological Sciences, China Meteorological Administration, Beijing, China)</i> | 24 |
| 08:30 - 08:45 | Greenhouse Gas and Ozone Measurements From Aircraft in Alaska 2009 - 2011
<i>A. Karion (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i> | 25 |
| 08:45 - 09:00 | Long-Term Methane Observations at the Global Atmosphere Watch Site Jungfraujoch With Gas Chromatography and Cavity Ringdown Spectroscopy
<i>M. Steinbacher (EMPA, Laboratory for Air Pollution/Environmental Technology, Duebendorf, Switzerland)</i> | 26 |
| 09:00 - 09:15 | Measurement of Uncertainty
<i>Stan Heckman (Earth Networks, Inc., Germantown, MD)</i> | 27 |
| 09:15 - 09:30 | Measuring CO, CH ₄ , CO ₂ & H ₂ O in a Single Instrument; Using New CRDS Technology to Characterize Urban Plumes & The Well-Mixed Atmosphere
<i>Gloria Jacobson (Picarro Inc, Santa Clara, CA)</i> | 28 |
| 09:30 - 09:45 | Towards On-Line Monitoring of ¹⁴ C in Atmospheric CO ₂
<i>H.A.J. Meijer (Centre for Isotope Research, University of Groningen, Groningen, Netherlands)</i> | 29 |
| • 09:45 - 10:15 | Morning Break | |
| • Session 6 | Carbon Cycle — Urban Emissions — Chaired by Arlyn Andrews | |
| 10:15 - 10:30 | Patterns and Variability in Δ ¹⁴ C of CO ₂ in Northern Hemisphere Background Air
<i>H.D. Graven (Scripps Institution of Oceanography (SIO), University of California at San Diego, La Jolla, CA)</i> | 30 |
| 10:30 - 10:45 | Evidence of Emissions From Oil and Gas Drilling Operations in Northeastern Colorado
<i>G. Petron (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i> | 31 |
| 10:45 - 11:00 | Observations of ¹⁴ CO ₂ at the Boulder Atmospheric Observatory (BAO)
<i>Brian LaFranchi (Lawrence Livermore National Laboratory, Livermore, CA)</i> | 32 |
| 11:00 - 11:15 | Quantification of Anthropogenic Emissions From an Urban Region: First Results of Time-Integrated Flask Samples From the Indianapolis Flux (INFLUX) Project
<i>Jocelyn Turnbull (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i> | 33 |
| 11:15 - 11:30 | Quantification of Emissions From Methane Sources in Indianapolis Using an Aircraft-Based Platform
<i>Maria Obiminda Cambaliza (Department of Chemistry, Purdue University, West Lafayette, IN)</i> | 34 |
| 11:30 - 11:45 | Identification of Methane Emissions in an Urban Setting
<i>Eric Crosson (Picarro Inc, Santa Clara, CA)</i> | 35 |
| • 11:45 - 13:00 | Catered Lunch Service – Outreach Classroom GB-124 (pre-payment of \$10.00 required at registration table) | |

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• Session 7	Carbon Cycle — Observational Interpretation — Chaired by Pieter Tans	
13:00 - 13:15	Exploring the Recent Biennial Cycle in Observed CO ₂ Growth Rate Using CarbonTracker <i>Andrew R. Jacobson (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i>	36
13:15 - 13:30	Can We Explain Recent Increases in Atmospheric CH ₄ ? <i>E.J. Dlugokencky (NOAA Earth System Research Laboratory, Boulder, CO)</i>	37
13:30 - 13:45	Using CarbonTracker-CH ₄ to Understand the Recent Methane Budget <i>Lori Bruhwiler (NOAA Earth System Research Laboratory, Boulder, CO)</i>	38
13:45 - 14:00	The Drivers of the CH ₄ Seasonal Cycle in the Arctic and What Long-Term Observations of CH ₄ Imply About Trends in Arctic CH ₄ Fluxes <i>Colm Sweeney (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)</i>	39
14:00 - 14:15	The Isotopic Composition of Oxygen in Atmospheric CO ₂ and El Niño: A New Constraint on Global Productivity <i>L.R. Welp (Scripps Institution of Oceanography (SIO), University of California at San Diego, La Jolla, CA)</i>	40
14:15 - 14:30	Civil Aircraft for the Regular Investigation of the Atmosphere Based on an Instrument Container (CARIBIC) Observations of CO ₂ Uptake During the Indian Summer Monsoon <i>Carl Brenninkmeijer (Max Planck Institute for Chemistry, Mainz, Germany)</i>	41
• 14:30 - 15:00	Afternoon Break	
• Session 8	Carbon Cycle — Special Session — Chaired by Lori Bruhwiler	
15:00 - 15:15	Importance of Reliable Continuous Records of Earth System Parameters <i>T.J. Blasing (Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, Oak Ridge, TN)</i>	42
15:15 - 15:30	Assessment of the Long-Term Trend of Turkey's GreenHouse Gas (GHG) Emissions Using the Mann Kendall Test <i>Fatma Öztürk (NOAA Earth System Research Laboratory, Boulder, CO)</i>	43
15:30 - 15:45	Using Data to Improve a Global Fire Model for Use in Climate Models and Earth System Models <i>Brian Magi (NOAA Geophysical Fluid Dynamics Laboratory, Princeton, NJ)</i>	44
• Session 9	Carbon Cycle — Remote Sensing — Chaired by Lori Bruhwiler	
15:45 - 16:00	Progress in Remote Sensing of Carbon Dioxide From Space - the ACOS Project <i>Michael Gunson (Jet Propulsion Laboratory, Pasadena, CA)</i>	45
16:00 - 16:15	Atmospheric Infrared Sounder (AIRS) Retrieval of Atmospheric Carbon Dioxide (CO ₂) in Three Layers <i>Edward T. Olsen (Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA)</i>	46
16:15 - 16:30	NDACC Fourier Transform Spectroscopy (FTS) Trace Gas Trends and the Revitalized Mauna Loa Observatory (MLO) FTS System <i>James Hannigan (National Center for Atmospheric Research, Boulder, CO)</i>	47
16:30 - 16:45	Remote Measurement of Greenhouse Gases Under Cloud With the Atmospheric Emitted Radiance Interferometer (AERI) Fourier Transform Spectrometer (FTS) Instrument <i>W.F.J. Evans (Northwest Research Associates, Redmond, WA)</i>	48
• Closing Remarks	Dr. James H. Butler (NOAA/ESRL)	

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• ***Carbon Cycle & Greenhouse Gases***

- P-1 Oxygen-18 of Atmospheric CO₂: Decadal Trends and Climate Variability
E.J. Zakem (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)
- P-2 A Low-Maintenance Drying System for Ambient Air Greenhouse Gas Monitoring
L.R. Welp (Scripps Institution of Oceanography (SIO), University of California at San Diego, La Jolla, CA)
- P-3 Comparison of Co-Located Air Samples at Mauna Loa Observatory and CO₂ Observations at Mt. Fuji
A. Sunaga (National Institute of Environmental Studies (NIES), Center for Global Environmental Research (CGER), Ibaraki, Japan)
- P-4 Results From the North American Carbon Program Midcontinent Intensive Regional Experiment
T. Lauvaux (Pennsylvania State University, University Park, PA)
- P-5 Northern Hemisphere Trends in Carbon Monoxide: Effects of Changes in Anthropogenic Emissions and Biomass Burning
Paul Novelli (NOAA Earth System Research Laboratory, Boulder, CO)
- P-6 Active Sampling AirCore (ASAC) for Regional Trace Gas Sampling Surveys
T. Newberger (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-7 INFLUX: Tower-Based Greenhouse Gas Measurements and Flux Estimates in an Urban Environment
Laura McGowan (Pennsylvania State University, University Park, PA)
- P-8 Quasi-Continuous Methane Measurements at Cherskii, Russia
Molly J. Heller (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-9 How Well Do We Know $\Delta^{13}\text{C}$ of Atmospheric CO₂? Estimates of Uncertainty, Inter-Laboratory Comparisons, and Calibrations to Carbonate Primary Standards
Sylvia Michel (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)
- P-10 Identification of Urban Zones Related to Carbon Emission Levels Using Moderate Resolution Nighttime Satellite Imagery From the International Space Station: Preliminary Results
Chris Elvidge (NOAA National Geophysical Data Center, Boulder, CO)
- P-11 Mid-Stratospheric Measurements of CO₂, CH₄, and CO Using AirCore
H. Chen (NOAA Earth System Research Laboratory, Boulder, CO)
- P-12 Flask Versus *in Situ* Results at Tall Tower Sites
B.M. Walsh (Science and Technology Corporation, Boulder, CO)
- P-13 A Multi-Year Record of Airborne Continuous CO₂ in the U.S. Southern Great Plains
Sebastien Biraud (Earth Sciences Division, Lawrence Berkeley National Laboratory, Berkeley, CA)
- P-14 First Deployment of a New Mobile Laboratory for Greenhouse Gas Attribution Studies
Ray Bambha (Sandia National Laboratories, Livermore, CA)
- P-15 Development of High-Precision Gas Analyzers for Measurements of N₂O, CO, CH₄, CO₂, and H₂O
Doug Baer (Los Gatos Research, Mountain View, CA)
- P-16 An Approach for Estimating Multi-Species Boundary Values for Air Entering the North American Domain
A. Andrews (NOAA Earth System Research Laboratory, Boulder, CO)
- P-17 Inverting ¹³CO₂ for Terrestrial Carbon Fractionation in North America
Caroline Alden (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)
- P-18 The New Picarro G2311-f Methane, Carbon Dioxide, and Water Vapor Analyzer for Micrometeorological Applications
Chris Rella (Picarro Inc, Santa Clara, CA)
- P-19 2011 Tower Network Overview
J.D. Kofler (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-20 The Atmospheric Demonstration Experiment of the Integrated Carbon Observation System (ICOS)
O. Laurent (Laboratoire des Sciences du Climat et de l'Environnement (LSCE), Gif-sur-Yvette, France)

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• Ozone & Water Vapor

- P-21 Tropospheric Ozone Layer Attributes Quantified by Continuous Wavelet Transform (CWT) and Gradient Analysis
Guanyu Huang (Department of Atmospheric Science, Huntsville, AL)
- P-22 Modeling the Impact of Late 20th Century Stratospheric Ozone Changes: Sensitivity to Different Ozone Forcing Data Sets
Paul Young (NOAA Earth System Research Laboratory, Boulder, CO)
- P-23 Stratospheric Ozone Interannual Variability Measured by Lidar at Mauna Loa and Table Mountain
Guillaume Kirgis (Jet Propulsion Laboratory, California Institute of Technology, Table Mountain Facility, Wrightwood, CA)
- P-24 Stratospheric Water Vapor Trends Over Boulder, Colorado: Analysis of the 30-Year Boulder Record
Dale F. Hurst (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-25 Long-Term Tropospheric Ozone Variations at Background Measurement Sites
Samuel J. Oltmans (NOAA Earth System Research Laboratory, Boulder, CO)
- P-26 Tropospheric Ozone During the Intensive Ozone Network Study (IONS) 2010/CalNex From Ozonesonde Observations: Stratospheric Influence and Long-Range Transport
Samuel J. Oltmans (NOAA Earth System Research Laboratory, Boulder, CO)
- P-27 Ozone Atmospheric Concentrations and Atmosphere/Ocean Fluxes During the TexAQS 2006, STRATUS 2006, GOMECC 2007, GasEX 2008, and AMMA 2008 Cruises
P. Boylan (Institute of Arctic and Alpine Research (INSTAAR), University of Colorado, Boulder, CO)
- P-28 Determination of Dobson Spectral Characteristics, a New Method
Robert Evans (NOAA Earth System Research Laboratory, Boulder, CO)
- P-29 The RHUBC-II Campaign: Best-Guess Water Vapor Profiles and Their Impact on Far-Infrared (IR) Spectroscopic Studies
J. Delamere (Atmospheric and Environmental Research, Inc., Lexington, MA)
- P-30 Newly Identified Region of Rapid, High Concentration Wintertime Ozone Production
Russell C. Schnell (NOAA Earth System Research Laboratory, Boulder, CO)
- P-31 Tropospheric Ozone Lamina Structures and Vertical Correlation Lengths
Michael J. Newchurch (Department of Atmospheric Science, Huntsville, AL)
- P-32 Investigating Signatures of Large-Scale Advection and Microphysical Processes on Vertical Profiles of Water Vapor and Aerosols Near Mauna Loa and Mauna Kea
Adriana Bailey (Department of Atmospheric and Oceanic Sciences, University of Colorado, Boulder, CO)
- P-33 Can Ozone Cross-Sections Be Verified From the Ground-Based Measurements?
P. Kiedron (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-34 Continuity and Reliability of Measurements Made at the Cape Verde Atmospheric Observatory (CVAO)
K.A. Read (National Centre for Atmospheric Science, University of York, York, United Kingdom)
- P-35 Long Term Changes in the Upper Stratospheric Ozone at Syowa, Antarctica
Irina Petropavlovskikh (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)

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• Halocarbons & Other Trace Species

- P-36 Trends of Long-Lived Halocarbons, Nitrous Oxide and Sulfur Hexafluoride
Geoff Dutton (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-37 Global Trends in Atmospheric SF₆
Brad Hall (NOAA Earth System Research Laboratory, Boulder, CO)
- P-38 Airborne Measurements of Trace Gases During HIPPO: Comparisons With Satellite Retrievals From ACE-FTS and Aura Instruments
J.D. Nance (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-39 First Results From UCATS During the GloPac 2010 Mission
Eric J. Hintsä (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-40 Inexpensive Stratospheric Profiling as a Basis of Stratospheric Transport Monitoring Program
Fred L. Moore (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)

• Aerosols & Atmospheric Radiation

- P-41 NOAA GMD Participation in the Eleventh International Pyrheliometer Comparison (IPC-XI) September 26 - October 15 2011 World Radiation Center (WRC) Davos, Switzerland
Donald Nelson (NOAA Earth System Research Laboratory, Boulder, CO)
- P-42 A Proposed Solar Radiation and Aerosol Optical Depth Network for the Continental United States
Joseph Michalsky (NOAA Earth System Research Laboratory, Boulder, CO)
- P-43 Evaluation of Broadband Arctic Radiation Measurements: Introducing Tiksi Observatory
Nobuki Matsui (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-44 NOAA's Antarctic Ultraviolet (UV) Monitoring Program: It's More Than Just UV
Patrick Disterhoft (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-45 Typical Barrow Albedos Coupled With Solar Irradiance (I_o) Variability: A Sensitivity Study
Gail P. Anderson (NOAA Earth System Research Laboratory and Air Force Geophysics Laboratory, Boulder, CO)
- P-46 International Filter Radiometer Comparison Results
Gary Hodges (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-47 The Effect of Measured Ozone Profiles on Ultraviolet (UV) Photolysis Rate Coefficients in the Troposphere
K. Lantz (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-48 Development, Testing and Performance of a New Filter-Based Light Absorption Instrument
P.J. Sheridan (NOAA Earth System Research Laboratory, Boulder, CO)
- P-49 Analysis of High-Altitude Aerosol From Asia to Mauna Loa
Elisabeth Andrews (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-50 Seasonal Aerosol Distributions at Summit, Greenland: EC, OC, ¹⁴C and Individual Particle Analysis
George Klouda (Material Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD)
- P-51 Data Quality Explorations Using Duplicate Measurements
N.P. Hyslop (Crocker Nuclear Laboratory, University of California at Davis, Davis, CA)
- P-52 Aerosol Properties and Direct Radiative Effects Measured at a Representative Southeastern U.S. Site
W.B. Beuttell (Department of Physics and Astronomy, Appalachian State University, Boone, NC)

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• *Observatories, Global Cooperative Measurements, & Instrumentation*

- P-53 Extending the Use of the UK Based Research Aircraft to Provide a Long-Term Observation Platform
James Lee (National Centre for Atmospheric Science, University of York, York, United Kingdom)
- P-54 Using Surface Weather Observations to Reduce Atmospheric Transport Errors in Regional Inversions
Elena Novakovskaia (Earth Networks, Inc., Germantown, MD)
- P-55 Science at Summit Station, Greenland: Long-Range Plan
Katrine Gorham (CH2MHill Polar Services, Englewood, CO)
- P-56 Correlation Between Cloud Cover Trends and Surface Temperature Trends: A Comparison Between Barrow, Alaska and Tiksi, Russia
Ludmila Matrosova (Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, CO)
- P-57 Global Atmosphere Watch Activities in Kenya and Characteristics of Some of the Gas Species
C. C. Okuku (Kenya Meteorological Department, Nairobi, Kenya)
- P-58 Sonic Anemometer Angle of Attack Errors
John Kochendorfer (NOAA Atmospheric Turbulence and Diffusion Division, Oak Ridge, TN, USA)
- P-59 The World Meteorological Organization: The International Dimension of Weather, Water, and Climate
Renee Tatusko (NOAA National Weather Service, Silver Spring, MD)