

2009 NOAA/ESRL GLOBAL MONITORING ANNUAL CONFERENCE

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

Thursday, May 14th, 2009 AGENDA

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

- **07:00** **Conference Registration Opens – lunch order fee collected at registration table.**
- **08:00-08:30** **Morning Breakfast – Coffee, tea, fruit, bagels & donuts served**
- **Session 5** **Observatories and Global Measurements – Chaired by Brian Vasel** Page No.
- 08:30-08:45 U.S. Climate Reference Network: Current Status and Future Directions – *S. LeDuc (NOAA NCDC)* 24
- 08:45-09:00 Primary Study on the Characteristics of Trace Gases in a Clean Area of North China - *B. Jianhui (CAS, China)*.25
- 09:00-09:15 Overview of Chemical and Physical Measurements at Lulin Atmospheric Background Station (LABS, 2,862m
MSL) in Taiwan, East Asia Since 2006 – *N.H. Lin (National Central University, Taiwan)*..... 26
- 09:15-09:30 Year-Round Measurements and Interpretations at Greenland Environmental Observatory at Summit
(GEOSummit) – *R. Banta (Desert Research Institute)* 27
- 09:30-09:45 Measurements of Ambient Mercury and Related Species at the Mauna Loa Observatory 2002-2008 –
L. Alvarez-Aviles (EPA) 28
- 09:45-10:00 Interpreting Total Gaseous Mercury Observations with Lagrangian and Eulerian Atmospheric Models: A
Canadian Perspective – *J. Chun-Han Lin (U. Waterloo – Ontario)*.....29
- 10:00-10:15 Measurements of the Stable Isotopologues of Water Vapor at Mauna Loa for Monitoring the Atmospheric
Water Cycle – *D. Noone (University of Colorado/CIRES)*.....30
- **10:15-10:30** **Morning Break**
- **Session 6** **Ozone (and Global Measurements continued) – Chaired by Bryan Johnson**
- 10:30-10:45 Air Quality Implications of Ozone in Air Entering the West Coast of North America – *D.D. Parrish (ESRL)*..... 31
- 10:45-11:00 Reactive, Anthropogenic Trace Gases at the German GAW Site Hohenpeissenberg: Trends and Variability on
Various Time Scales – *C. Plass-Duelmer (German Meteorological Service)*.....32
- 11:00-11:15 Uptake of Ozone-Depleting Halogenated Gases to the Snow-Covered Surface at Niwot Ridge, Colorado –
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- 11:15-11:30 Springtime Tropospheric Ozone in the Arctic from Surface and Ozonesonde Observations –
S.J. Oltmans (ESRL)..... 34
- 11:30-11:45 Increasing Mid-Tropospheric Ozone Above Western North America During Springtime – *O. Cooper (University
of Colorado/CIRES)*.....35
- 11:45-12:00 Updated Outcomes for Greenhouse Gases from China GAW Stations and Near Future
Implementation – *L. Zhou (CAMS, China)*..... 36
- **12:00-13:00** **Catered Lunch Service – Outreach Classroom GB-124 (pre-payment of \$10.00 required)**
- **Session 7** **Solar Radiation and Aerosols – Chaired by Patrick Sheridan**
- 13:00-13:15 NOAA's Potential to Support Renewable Energy – *M. Marquis (ESRL)*..... 37
- 13:15-13:30 Comparison of Model Predictions of Aerosol Radiative Properties with Long-Term Measurements –
J.A. Ogren (ESRL) 38
- 13:30-13:45 Trends and Properties of Tropospheric Aerosols that Undergo Long-Range Transport to the North American
Arctic – *P. Quinn (NOAA PMEL)* 39
- 13:45-14:00 Relating OC/EC Data from Two National Monitoring Networks – *W. White (U. California-Davis)*..... 40
- 14:00-14:15 The Ratio of Total Aerosol Carbon to Sulfate in the Free Troposphere at MLO – *B.J. Huebert (U. Hawaii)*..... 41
- 14:15-14:30 Solar Radiation Data from Citizen Surface Stations Worldwide – *R.B. Chadwick (ESRL)*.....42
- 14:30-14:45 Surface Radiation at Globally Remote Sites: From Dimming and Brightening to Warming –
E.G. Dutton (ESRL).....43
- **14:45-15:00** **Afternoon Break**

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• Session 8	Upper Troposphere and Stratosphere (and a new direction) – Chaired by Sam Oltmans
15:00-15:15	A New Look at Antarctic Ozone Hole Recovery – <i>D.J. Hofmann (University of Colorado/CIRES)</i>44
15:15-15:30	Toward a More Accurate Estimate of Global Stratospheric Aerosol Surface Area Density. Is it Important? – <i>T. Deshler (U. Wyoming)</i>45
15:30-15:45	The GCOS Reference Upper Air Network (GRUAN) – <i>H. Vömel (Deutscher Wetterdienst)</i>46
15:45-16:00	Evidence for Recent Stratospheric Circulation Changes from Multiple Measurement Sources – <i>E. Ray</i> <i>(University of Colorado/CIRES)</i>47
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16:30-16:45	Behavior of Some TC-4 Atmospheric Parameters Measured by Balloonsondes and NASA Aircraft – <i>A. Pino</i> <i>(U. Panama)</i>50
16:45-17:00	Rapid Photochemical Production of Ozone at High Concentrations in a Rural Site During Winter – <i>R.C. Schnell (ESRL)</i>51

Closing: Dr. James H. Butler (ESRL)

Abstract book solicitation, editing, preparation and printing: Misti Hinson, James Salzman, Kirk Thoning, Brian Vasel, Dan Endres, Tom Mefford, Miyuki Kaffroath, and Bill Cushman.

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POSTER SESSION AGENDA

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Wednesday, May 13th, 2009: 1645-1830

• Carbon Cycle

- P-1 The Cape Verde Atmospheric Observatory (CVAO) Observatório Atmosferico De Cabo Verde: Humberto Duarte Fonseca – K.A. Read (University of York, UK)
- P-2 Long-Term Decline in Global Ethane Levels, 1984-2008 – I. Simpson (University of California, Irvine)
- P-3 Validation of *In Situ* Measurements for Analysis of CO₂, CH₄, and H₂O in Aircraft – C. Sweeney (University of Colorado/CIRES)
- P-4 Vertical Profiles of CO, CH₄, and CO₂ above Poker Flat, Alaska, Molokai, Hawaii, and Rarotonga, Cook Islands – P. Novelli (ESRL)
- P-5 Carbon Tracker – CH₄ – L. Bruhwiler (ESRL)
- P-6 Quantifying CH₄ Emissions with Airborne Differential Absorption LIDAR Data – S.V. Stearns (ITT, Space Division)
- P-7 Column CO₂ Estimates at ARM-SGP – M.L. Fischer (Lawrence Berkeley National Lab)
- P-8 Comparison of LM3V and Carbon Tracker Data: Initial Results – N. Golaz (Princeton Environmental Institute)
- P-9 Identification of Greenhouse Gas Source Signatures in the San Francisco Bay Area Using *In Situ* Aircraft Measurements – A. Karion (University of Colorado/CIRES)
- P-10 Reconciling Modeled Ocean Carbon Fluxes with Atmospheric ¹³C Observations – C. Alden (University of Colorado/INSTAAR)
- P-11 Quantification of Fossil Fuel CO₂ Emissions from East Asia Using Atmospheric Observations of ¹⁴CO₂ – J. Turnbull (ESRL)
- P-12 Carbon Tracker: Sensitivity to Potential Systematic Bias in CO₂ Observations – K. Masarie (ESRL)
- P-13 Data Quality and Continuity for the ESRL/GMD Tall Tower Network – A. Andrews (ESRL)
- P-14 Interpreting Dense CO₂ Measurements: Ensemble Filters vs. Variational Data Assimilation – D. Baker (Colorado State University/CIRA)
- P-15 High Latitude Carbon Exchange Estimated From Co-Variation of CO₂ and Potential Temperature – G. Keppel-Aleks (California Institute of Technology)
- P-16 Observing Regional CO₂ Plumes with an Airborne Differential LASER Absorption System – T.S. Zaccheo (Atmospheric and Environmental Research, Inc.)
- P-17 On-Road Study of Colorado Front Range Greenhouse Gases Distribution and Sources – G. Petron (University of Colorado/CIRES)

• Ozone

- P-18 Continuous Tower-Based Tropospheric Ozone Measurements – L.C. Patrick (University of Colorado/CIRES)
- P-19 Statistical Analysis and Estimation of the External Effects on the Total Ozone Field Over Russia in 1973-2007 – E.A. Titova (Main Geophysical Observatory)
- P-20 Long-Term Ozone Trends in Umkehr Measurements at Japanese Stations – K. Miyagawa (Japan Meteorological Agency)
- P-21 Boundary Layer Ozone Depletion Events Measured by Ozonesondes at Barrow, AK in 2009 – B. Johnson (ESRL)
- P-22 Boulder and the Global Climate Observing System (GCOS) Reference Upper Air Network (GRUAN) – D. Hurst (University of Colorado/CIRES)

• Halocarbons and Other Trace Species

- P-23 Long-Term Monitoring and Trends of Halocarbons – G.S. Dutton (University of Colorado/CIRES)
- P-24 A Comparison of Seasonal Cycles in Nitrous Oxide Among Different Monitoring Networks – C.D. Nevison (University of Colorado/INSTARR)
- P-25 New Estimates of Global Sulfur Hexafluoride Emissions Using AGAGE and NOAA Measurements – M. Rigby (Center for Global Change Sciences, MIT)
- P-26 Isotopic Constraints on the Global Budget of Atmospheric Nitrous Oxide: Analysis of Recent Data – Y.L. Yung (California Institute of Technology)
- P-27 Improvements to the NOAA/GMD Cryogenic Frost Point Hygrometer (FPH), New Digital Control – E. Hall (University of Colorado/CIRES)
- P-28 On the Definition of a European Baseline for Climate Altering Halogenated Gases – F. Furlani (University of Urbino, Institute of Physics)

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POSTER SESSION AGENDA (continued)

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• Halocarbons and Other Trace Species (continued)

- P-29 Snapshot of Atmospheric Trace Gases "Pole to Pole" – Results From the HIPPO – *B.R. Miller (University of Colorado/CIRES)*
- P-30 Global Trends in SF₆ from the Halocarbon Flask Sampling Network – *B. Hall (ESRL)*
- P-31 START-08 and HIPPO: Airborne Projects of the HATS Group in ESRL/GMD – *F.L. Moore (University of Colorado/CIRES)*

• Aerosols and Radiation

- P-32 Decadal Brightening of Downwelling Shortwave in the Continental U.S. – *J. Augustine (ESRL)*
- P-33 Shortwave Spectral Radiative Closure Studies at the ARM Southern Great Plains Climate Research Facility – *J. Delamere (Atmospheric & Environmental Research, Inc.)*
- P-34 Aerosol Climatology for the ARM Climate Research Facility in North-Central Oklahoma: 1992-2008 – *J. Michalsky (ESRL)*
- P-35 The NOAA/ESRL Airborne Aerosol Observatory: Climatology and Seasonal Variations of Aerosol Properties Over Central Illinois – *P. Sheridan (ESRL)*
- P-36 The NOAA/ESRL Collaborative Global Surface Aerosol Monitoring Network – *P. Sheridan (ESRL)*
- P-37 Measurements of Sub-Micron Particles Using an Ultra-High Sensitivity Aerosol Spectrometer (UHSAS) from the Mauna Loa Observatory during HAWAIIKI, October and November, 2009 – *D.W. Toohey (University of Colorado)*
- P-38 Synoptic Transport of Anthropogenic BC to the Arctic – *S. Sharma (Environment Canada)*
- P-39 Spatial and Temporal Variations of Aerosol Optical and Chemical Properties at Five Canadian Sites – *S. Sharma (Environment Canada)*
- P-40 Using a Camera LIDAR and Nephelometer for Aerosol Profiling – *J. Barnes (ESRL)*
- P-41 Aerosol Single Scattering Albedo from Direct-to-Diffuse UV Solar Irradiance at the Table Mountain NEUBrewer Site – *K. Lantz (University of Colorado/CIRES)*

• Observatories, Cooperative Measurements and Global Databases

- P-42 Micro-Pulse LIDAR Network (MPLNET) Status and LIDAR Observations from the NOAA ESRL Trinidad Head Observatory Site – *T. Berkoff (Goddard Earth Science and Technology Center)*
- P-43 Comparison of Barrow, AK and Tiksi, Russia Climate Variability Using Historical Meteorological Records – *L. Matrosova (University of Colorado/CIRES)*
- P-44 The International Arctic Systems for Observing the Atmosphere – Synergistic Potentials with the NOAA Baseline Observatories – *T. Uttal (ESRL)*
- P-45 A Real Time Display of Meteorological Parameters from the NOAA ESRL Baseline Observatories – *D. Endres (ESRL)*
- P-46 Long-Term Climate Variability in the Area Surrounding Tiksi, Russia – *A. Makshitas (Arctic and Antarctic Research Institute)*
- P-47 ARM Climate Research Facilities on the North Slope of Alaska: An Update on Field Campaigns, Instruments, and Team Changes in 2008, IOPs and Changes in Facilities Planned for 2009 – *M.D. Ivey (Sandia National Laboratories)*
- P-48 Chemical Precipitation on the Russian Arctic Territory – *A.I. Polischuk (Main Geophysical Observatory)*
- P-49 Detection and Characterization of Systematic Errors in Atmospheric Models – *S. Gutman (ESRL)*
- P-50 Zero Waste: A Practical and Effective Approach to Reducing Human Impacts on Climate – *M.J. Heller (University of Colorado/CIRES)*
- P-51 Wind-Flow Characteristics at the Heights of Modern Wind Turbines from LIDAR Measurements – *Y.L. Pichugina (University of Colorado/CIRES)*
- P-52 The Nonhydrostatic Icosahedral Model – *Jin-I Lee (ESRL)*
- P-53 Ozone Characteristics on Mt. Kenya and Nairobi (Kenya) – *J. Nguyo (Kenya Meteorological Department)*
- P-54 Hardware and Software Improvements to the Epply Solar Tracker – *A. Jordan (Science Technology Corporation)*
- P-55 Carbon Monoxide as an Indicator of Ozone Concentration – *J. Mitei (Kenya Meteorological Department)*
- P-56 Temporal Patterns on Stratospheric Ozone and Nitric Oxide over a Tropical Station and their Connection to Sea Surface Temperatures – *M. Muthama (Department of Meteorology, University of Nairobi)*
- P-57 Climate Change Signals and Global Atmospheric Watch Activities in Kenya – *C.C. Okuku (Kenya Meteorological Department)*