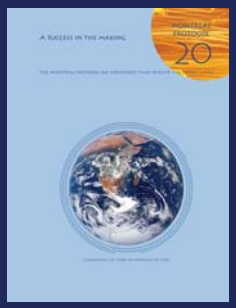
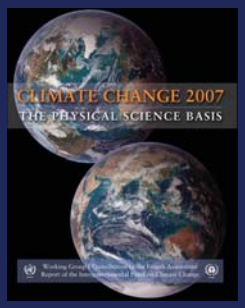
2011 IYC O_3

Symposium on Stratospheric Ozone and Climate Change

IYC 2011
International Year of
CHEMISTRY





PROGRAM
November 7–10
Washington, D.C.

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International Year of CHEMISTRY 2011

2011 IYC O_3 Symposium Program
November 7–10, 2011
The Ronald Reagan Building and International Trade Center
1300 Pennsylvania Avenue NW
Washington, D.C. 20004

MONDAY, NOVEMBER 7, 2011

Location: Atrium Ballroom

7:00–8:00	Registration and Breakfast
8:00–9:30	**Session (O1): IYC O_3 Celebration**
Presiding	**Robert T. Watson,** Chief Scientific Adviser, U.K. Department for Environment, Food and Rural Affairs, and Strategic Director of the Tyndall Center, University of East Anglia; Chair of the Intergovernmental Panel on Climate Change (IPCC, 1997–2002)
8:00–8:10	**Mario J. Molina,** 1995 Nobel Laureate in Chemistry *Opening remarks*
8:10–8:30	**Nancy B. Jackson,** President, American Chemical Society
8:30–8:50	**Michael J. McPhaden,** President, American Geophysical Union
8:50–9:10	**Jonathan Malay,** President, American Meteorological Society
9:10–9:30	**Michel Jarraud,** Secretary General, World Meteorological Organization
9:30–10:00	Coffee Break
10:00–12:00	**Session (O2/D1): Scientific Lessons to Stratospheric Ozone and Climate Change**
Presiding	**Andrew C. Revkin,** Pace Academy for Applied Environmental Studies, Pace University; Science Writer of the *New York Times* (1995–2009)
10:00–10:20	**Susan Solomon**, University of Colorado, Boulder *The Scientific Assessments of Ozone Depletion and Climate Change: Successes, Challenges, and Some Future Directions*
10:20–10:40	**Mario J. Molina,** University of California, San Diego *Climate Science, Energy, Policy, and Economic Issues*
10:40–11:00	**Robert T. Watson,** Chief Scientific Adviser, U.K. Department for Environment, Food and Rural Affairs *Stratospheric Ozone and Climate change: Integration between Science and Policy*
11:00–12:00	Moderated Panel Discussions Moderator: **Andrew C. Revkin** Panelists: **Susan Solomon, Mario J. Molina,** and **Robert T. Watson**
12:00–1:30	Lunch Break
1:30–3:00	**Session (O3/D2): Montreal Protocol I: Stratospheric Ozone Layer Protection**
Presiding	**Drusilla Hufford,** Director of Stratospheric Protection Division, U.S. Environmental Protection Agency
1:30–2:20	Overviews (10 minutes by each panelist)
2:20–2:45	Moderated Panel Discussions
2:45–3:00	Questions and Answers

Panelists: **A.R. Ravishankara,** Director, Chemical Sciences Division,
Earth System Research Laboratory, NOAA
Phillip Lapin, Chairman of the Board of the Alliance for Responsible Atmospheric Policy
David Doniger, Natural Resources Defense Council
Paul Horwitz, Deputy Executive Secretary, Ozone Secretariat, U.N. Environmental Program
Drusilla Hufford, U.S. Environmental Protection Agency
Moderator: **Steve Seidel**
(Organizers: Drusilla Hufford and Steve Seidel)

3:00–3:30 Coffee Break

3:30–5:00 Session (O4/D3): Montreal Protocol II: Climate Protection

Presiding **Steve Seidel,** Vice President for Policy Analysis and General Counsel, Pew Center on Global Climate Change

3:30–4:20 Overviews (10 minutes by each panelist)
4:20–4:45 Moderated Panel Discussions
4:45–5:00 Questions and Answers
Panelists: **Daniel Reifsnyder,** Deputy Assistant Secretary for Environment, U.S. Department of State
Guus Velders, Netherlands Environmental Assessment Agency
Mack McFarland, DuPont Chemical and Fluoroproducts
Durwood Zaelke, President of the Institute for Governance and Sustainable Development
Moderator: **Steve Seidel**
(Organizers: Drusilla Hufford, Mack McFarland, and Steve Seidel)

TUESDAY, NOVEMBER 8, 2011
Location: Atrium Ballroom

7:00–8:00 Registration and Breakfast

8:00–9:30 Session (O5): Current Stratospheric Research I

Presiding **A.R. Ravishankara,** NOAA, and **Paul A. Newman,** NASA

8:00–8:20 **Richard S. Stolarski,** Johns Hopkins University
Satellite Detection of Global Ozone Trend and Polar Ozone Depletion

8:20–8:40 **Samuel J. Oltmans,** University of Colorado at Boulder
Tracking Stratospheric Ozone Recovery from Ground-based Measurements: Yes We Need Them

8:40–9:00 **Owen B. Toon,** University of Colorado at Boulder
Polar stratospheric Clouds and Aerosols and their Impact on the Ozone Layer

9:00–9:20 **Paul A. Newman,** GSFC NASA
The World Avoided by the Montreal Protocol

9:20–9:30 Discussions
(Organizer: Paul A. Newman)

9:30–10:00 Coffee Break

10:00–12:00 Session (O6/D4/D5): The 1990 Clean Air Act Amendments (CAAA): History, Implementation, and Impacts

Presiding **Ann O'M. Bowman,** The Bush School of Government and Public Service, Texas A&M University

10:00–10:10 The Honorable George Bush, 41st President of the United States
Video presentation

10:10–10:30 Keynote Address: C. Boyden Gray, Boyden Gray & Associates, LLP; White House Counsel (1989–1993); U.S. Ambassador to the European Union (2006–08)

10:30–11:30 Moderated Panel Discussions: Political History of the CAAA of 1990
Moderator: **C. Boyden Gray**
Panelists: **Michael R. Deland,** Attorney at Law; Chair, Council on Environmental Quality (1989–1993)
Robert E. Grady, Partner, Cheyenne Capital Fund; Associate Director (1989–1991) and Executive Associate Director (1991–93) of the Office of Management and Budget (OMB); Deputy Assistant to the President (1991–1993)
Fred Krupp, Executive Director (1984–2002) and President (2002–present) of the Environmental Defense Fund
Roger B. Porter, IBM Professor of Business and Government, Harvard University; Assistant to the President for Economic and Domestic Policy (1989–1993)

11:30–12:00 Moderated Panel Discussions: Implementation and Impacts of the CAAA of 1990
Moderator: **Ann O'M. Bowman,** The Bush School of Government and Public Service, Texas A&M University
Panelists: **Robert N. Stavins,** Albert Pratt Professor of Business and Government, and Director of the Harvard Environmental Economics Program, John F. Kennedy School of Government, Harvard University
William G. Rosenberg, President, E3 Ventures, LLC; Former Assistant Administrator for Air and Radiation, U.S. Environmental Protection Agency (1989–1993)
(Organizers: **Jeryl Mumpower** and **Ann O'M. Bowman**)

12:00–1:30 Lunch Break

Presiding	**Andrew H. Card, Jr.,** Acting Dean, The Bush School of Government and Public Service, Texas A&M University; White House Chief of Staff (2001-2006)
12:30–1:00	Keynote Address: **William K. Reilly,** Administrator, U.S. Environmental Protection Agency (1989–1993) *Confronting the Clean Air Roll Back: Where and How?* (Organizers: **Jeryl Mumpower** and **Ann O'M. Bowman**)
1:30–3:00	**Session (O7/D6): Congressional Accomplishments and Challenges to Ozone Protection and Climate Change: Past and Present**
Presiding	**Nikki Roy,** Vice-President, Federal Government Outreach, Pew Center on Global Climate Change
1:30–2:10	Overviews (10 minutes by each panelist)
2:10–2:45	Moderated Panel Discussions
2:45–3:00	Questions and Answers Panelists: **Steve Shimberg,** former Chief Counsel and Staff Director, Senate Committee on Environment and Public Works (under Sen. John Chaffee, R-RI) **Jeffrey Burnham,** former Staff to Senate Committee on Agriculture (under Sen. Richard Lugar, R-IN) and former Deputy Assistant Secretary of State for Environment, Bureau of Oceans and International Environmental and Scientific Affairs, Department of State **David Banks,** Deputy Staff Director, Senate Committee on Environment and Public Works (under Sen. James Inhofe, R-OK) **Ana Unruh Cohen,** Deputy Staff Director, House Natural Resources Committee (under Rep. Edward Markey, D-MA) Moderator: **Nikki Roy** (Organizer: Steve Seidel)
3:00–3:30	Coffee Break
3:30–5:00	**Session (O8/D7): Climate Research: Current Status, Uncertainty, and Challenges**
Presiding	**Alan K. Betts,** Atmospheric Research, and Yangang Liu, Brookhaven National Laboratory
3:30–3:35	**Alan K. Betts** *Introduction*
3:35–3:47	**Gerald R. North,** Texas A&M University *The context from Past Climates*
3:47–3:59	**Stephen E. Schwartz,** Brookhaven National Laboratory *Fossil Energy, CO_2, Climate Change, and the Aerosol Problem*
3:59–4:11	**V. Ramaswamy,** GFDL, Princeton University *Advances in the Understanding of Climate Forcings and Responses*
4:11–4:23	**David Randall,** Colorado State University *Future Climate Modeling and Parameterization Development*
4:23–4:35	**Michael G. Bosilovich,** NASA GMAO *Reanalysis for climate*
4:35–5:00	Moderated Panel Discussions Moderator: **Alan Betts** (Organizers: Yangang Liu and Alan K. Betts)
5:30–7:00	**Symposium Reception**

WEDNESDAY, NOVEMBER 9, 2011
Location: Pavilion

7:00–8:00	Registration and Breakfast
8:00–9:30	**Session (O9): Industrial Environmental Chemistry: Search for new low GWP alternatives**
Presiding	**Mario J. Nappa,** DuPont Chemical and Fluoroproducts
8:00–8:12	**Mario J. Nappa,** DuPont Chemical and Fluoroproducts *Challenges facing the chemical industry in developing new low GWP alternatives*
8:12–8:24	**Mark W. Spatz,** Honeywell International *Low GWP Refrigerants for Stationary Air Conditioning and Refrigeration Applications*
8:24–8:36	**Brett Van Horn,** Arkema Inc. *Next Generation Low GWP Fluid Development*
8:36–8:48	**M.P. Sulbaek Andersen,** T.J. Wallington, O.J. Nielsen, M.D. Hurley and S. P. Sander, NASA Jet Propulsion Laboratory, California Institute of Technology *Atmospheric Chemistry of trans-$CF_3CH=CHCl$*
8:48–9:00	**O.J. Nielsen,** T.J. Wallington, M.P. Sulbaek Andersen, and M.D. Hurley, University of Copenhagen *Atmospheric Chemistry of $CF_3CF=CH_2$ (HFO-1234yf)*
9:00–9:12	**David J. Williams,** Honeywell *Low GWP, High Performance Blowing Agents For Closed Cell Rigid Foam Applications*
9:12–9:24	**Cindy Newberg,** U.S. Environmental Protection Agency *Paving the Way to Safer Substitutes with EPA's SNAP Program*
9:24–9:30	Discussions
9:30–10:00	Coffee Break
10:00–12:00	**Session (O10): Monitoring and Regulation of Halogens and Greenhouse Gases**
Presiding	**Jim Butler,** NOAA, and **Shari Yvon-Lewis,** Texas A&M University
10:00–10:10	**Jim Butler,** Global Monitoring Division, Earth System Research Laboratory, NOAA *Opening Remarks*
10:10–10:30	**Dave S. Godwin,** U.S. Environmental Protection Agency *Considerations for Bottom-up Modeling of Hydrofluorocarbon Emissions*
10:30–10:50	**Stephen A. Montzka**, G. Dutton, B.D. Hall, J.W. Elkins, J.H. Butler, P. Newman, Earth System Research Laboratory, NOAA *Monitoring the Progress of the Montreal Protocol and Implications for Effectively Controlling Greenhouse gases*
10:50–11:10	**Ray Weiss,** Scripps Institution of Oceanography, University of California, San Diego *The Case for Verifying Emissions from Atmospheric Measurements*
11:10–11:30	**Lori M. Bruhwiler,** Global Monitoring Division, NOAA Earth System Research Laboratory *The Atmospheric Budgets and Trends of CH_4 and N_2O Revealed by Multi-decadal Observations from the NOAA ESRL Global Cooperative Air Sampling Network*
11:30–11:50	**Matthew Rigby,** Joint Program on the Science and Policy of Global Change, Massachusetts Institute of Technology *Using Models to Derive Emissions from Atmospheric Measurements on Global and National Scales*
11:50–12:00	**Jim Butler**, Global Monitoring Division, Earth System Research Laboratory, NOAA *Concluding Remarks* (Organizers: **Jim Butler** and **Shari Yvon-Lewis**)
12:00–1:30	Lunch Break

1:30–3:00	**Session (O11): Current Stratospheric Research II**
Presiding	**Paul A. Newman,** GSFC NASA
1:30–1:50	**William H. Brune,** Penn State University *Impacts of Aircraft and Balloon Observations on Ozone Depletion Research*
1:50–2:10	**Stanley P. Sander,** NASA Jet Propulsion Laboratory, California Institute of Technology *Evaluation of Kinetic and Photochemical Data for Stratospheric Research*
2:10–2:30	**Theodore G. Shepherd**, University of Toronto *The Ozone Layer of the Future, Where Are We Going?*
2:30–2:50	**Darryn W. Waugh**, John Hopkins University *The Antarctic Ozone Hole and Southern Hemisphere Climate and Weather*
2:50–3:00	Discussions (Organizer: **Paul A. Newman**)
3:00–3:30	Coffee Break
3:30–5:00	**Poster Session I (P1)**

THURSDAY, NOVEMBER 10, 2011
Location: Pavilion

7:00–8:00	Registration and Breakfast
8:00–9:30	**Session (O12): Stratospheric Ozone, Climate, and Policy**
Presiding	**Ross J. Salawitch,** University of Maryland at College Park
8:00–8:12	**Tim Canty,** Nora R. Mascioli and Ross Salawitch**,** University of Maryland *The Impact of Volcanoes and Ocean Circulation on Globally Averaged Surface Temperature*
8:12–8:24	**John S. Daniel,** S Solomon, T. J. Sanford, M. McFarland, J. S. Fuglestvedt, and P. Friedlingstein, ESRL Chemical Sciences Division, NOAA *Limitations of Single-basket Trading: Lessons from the Montreal Protocol for Climate Policy*
8:24–8:36	**Zhanqing Li,** University of Maryland *Long-term and Global Impacts of Aerosols on Clouds and Precipitation*
8:36–8:48	**Judith L. Lean,** Naval Research Laboratory *Total Atmospheric Ozone: Past and Future*
8:48–9:00	**Howard K. Roscoe,** British Antarctic Survey *The Increase of Southern Ocean Winds and SAM is Caused by the Ozone Hole Rather than by Increased Greenhouse Gases*
9:00–9:12	**Michelle L. Santee,** Gloria L. Manney, Nathaniel J. Livesey, Markus Rex *Unprecedented Arctic Ozone Loss in 2011: Context Based on Seven Years of Global Aura Microwave Limb Sounder Observations*
9:12–9:24	**Rolf Müller,** Marc von Hobe, Fred Stroh, and the RECONCILE science team, Forschungszentrum Jülich (IEK-7), Germany *How Complete is our Understanding of Polar Ozone Depletion?*
9:24–9:30	Discussions
9:30–10:00	Coffee Break
10:00–12:00	**Poster Session II (P2)**
12:00–1:30	Lunch Break
Presiding	**Chuck Kolb,** President, Aerodyne Research, Inc.
12:30–1:00	**Luncheon Keynote: Ralph Cicerone,** President of National Academy of Sciences *Stratospheric Ozone Lessons Learned and their Relevance to Climate Change* (Organizer: Chuck Kolb)
1:30–3:00	**Session (D8): Education, Outreach, and Communication: Telling the Stories of Stratospheric Ozone Layer and Climate Change**
Presiding	**Ming-Ying Wei,** NASA Headquarters
1:30–1:40	Video presentation from NASA
1:40–2:10	Overviews (5 minutes by each panelist)
2:10–2:45	Moderated Discussions
2:45–3:00	Questions and Answers Panelists: **Don Wuebbles,** University of Illinois at Urbana-Champaign **Erik Conway,** NASA Jet Propulsion Laboratory, California Institute of Technology **Jill Karsten,** National Science Foundation **Elliott Jacks,** NOAA **Drusilla Hufford,** U.S. EPA

(Organizer: Ming-Ying Wei)

3:00–3:30 Coffee Break

3:30–5:00 Session (O13): Young Scientist Forum

Presiding **Jiwen Fan,** Pacific Northwest National Laboratory; **Trude Storelvmo,** Yale University; **AnnMarie Carlton,** Rutgers University

3:30–3:50 **Susan Solomon,** University of Colorado, Boulder
Promotion of Science among Women and Youths

3:50–4:00 **Keynyn Brysse,** Princeton University
Learning to Assess Ozone Depletion

4:00–4:10 **Olga Suminska-Ebersoldt,** Research Centre Juelich, Germany
ClOOCl Photolysis at High Solar Zenith Angles: Analysis of the RECONCILE self-match flight

4:10–4:20 **Harald E. Rieder,** Columbia University
Evidence for the Effectiveness of the Montreal Protocol to Protect the Ozone Layer

4:20 – 4:30 **Birgit Hassler,** NOAA
Twenty-five Years of Ozonesonde Measurements at South Pole: An Assessment of Changing Loss Rates

4:30–4:40 **Jiwen Fan,** Pacific Northwest National Laboratory
How Aerosols Impact Deep Convection and Large-scale Circulation?

4:40–4:50 **Ines Engel,** ETH Zurich, Switzerland
PSC Observations in the Arctic winter 2009–10 Suggest Heterogeneous Nucleation of NAT and Ice

4:50–5:00 **Jonathan Petters,** AAAS Science and Technology Fellow
Changes in Aerosol State on Stratiform Cloud Systems: Implications for the Earth's Radiative Budget and Climate

5:00 Adjourn

Poster Session I

Wednesday November 9
3:30–5:00 pm
Location: Pavilion Prefunction

P1.1 Yukimasa Tsubota, J. F. Oberlin Univeristy, Japan
The Practice of an Outreach Program for the Ozone-Depletion Science

P1.2 Rolf Müller, Forschungszentrum Jülich (IEK-7), Germany
Brief history of stratospheric ozone research

P1.3 Li Shuanglin, Institute of Atmospheric Physics, China
A comparison of polar vortex trend induced by ozone depletion and tropical ocean warming and its implication

P1.4 Chaim Garfinkel, Johns Hopkins University
Improvement of the GEOS-5 AGCM upon updating the Air-Sea Roughness Parameterization

P1.5 Jane J. Liu, David Tarasick, Vitali Fioletov, Chris McLinden, Guiping Liu, Christopher Sioris, Huixia He, Jinjian Jin, Environment Canada, Canada
A Stratospheric Ozone Climatology From Global Ozone Soundings and Trajectory Statistics

P1.6 L. E. Flynn, D. Loyola, F-X Huang, W-H Wang, D. Rault, C.T. Beck, C. Long, S. Kondragunta, NOAA
Operational Ozone Sensors

P1.7 LIU Yi (1), LU ChunHui (1), KYRÖLÄ Erkki (2). 1 - Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China, and 2 - Finnish Meteorological Institute, Earth Observation, Helsinki, Finland
The quasi-biennial and semi-annual oscillation features of tropical O3, NO2, and NO3 revealed by GOMOS satellite observations

P1.8 J.-U. Grooß(1), K. Brautzsch (1), R. Pommrich (1,2), S. Solomon (3), and R. Müller (1). 1 - Forschungszentrum Jülich, Germany, 2 - Universite de Toulouse, France, and 3 - University of Colorado, Boulder, CO, USA
Stratospheric ozone chemistry in the Antarctic: what controls the lowest values that can be reached and their recovery?

P1.9 Catherine Middlecamp (1), Marta Gmurczyk (2), and Michael T. Mury (2). 1- University of Wisconsin-Madison, and (2) Education Division, American Chemical Society
In the Classroom: Stratospheric Ozone and Climate Change

P1.10 Christopher Blaszczak-Boxe, California Institute of Technology
An Inexpensive, Widely Available Material for 4 wt% Reversible Hydrogen Storage Near Room Temperature

P1.11 Lei Hu, Shari Yvon-Lewis, Yina Liu, Thomas S. Bianchi, Texas A&M University
The Ocean Appears to Be Near Equilibrium with Atmospheric CH3Br

P1.12 Yina Liu, Shari Yvon-Lewis, Thomas Bianchi, Lisa Campbell, Richard Smith and Li Shen, Texas A&M University
Sources of Polybrominated Very Short Lived Substances in the Eastern Pacific Ocean

P1.13 Eric Chan, Texas A&M University
Methane Production and Destruction: Theoretical and Experimental Reevaluation of Methane Isotope Kinetics

P1.14 Mengran Du, Texas A&M University
Using Dissolved Oxygen Anomalies to Assess the Spatial and Temporal Variability of Hydrocarbon Respiration in Response to the Oil Spill Event

P1.15 Laura Revell, Greg Bodeker, Petra Huck, Dan Smale, Bryce Williamson, Ross Salawitch and Tim Canty, University of Canterbury, The Netherlands
The chemical sensitivity of stratospheric ozone to nitrous oxide and methane

P1.16 Geoff Dutton, Brad Hall, David Nance, Debbie Mondeel, James Elkins, NOAA/CIRES
Three decades of continuous monitoring of long-lived halocarbons

P1.17 F. L. Moore, D. Chen, E. Ray, J.W.Elkins, P.P. Tans, A Karion, C. Sweeney,
NOAA Earth System Research Laboratory; and Cooperative Institute for Research in Environmental Sciences, University of Colorado.
Inexpensive Stratospheric Profiling as Basis of Stratospheric Transport Monitoring Program

P1.18 Jooil Kim, Shanlan Li, Kyung-Ryul Kim*, Sunyoung Park,Jens Mühle, Andreas Stohl, and Ray Weiss, School of Earth and Environmental Sciences, Seoul National University
Measurements of Halogenated Compounds at Gosan (Jeju Island, Korea) for Validation of Emissions from East Asia

P1.19 Andrew Orr, British Antarctic Survey
Effects of ozone depletion on the seasonal evolution of the Southern Hemisphere polar vortex and climate

P1.20 B. J. Johnson (1), S. J. Oltmans (2), J. H. Butler (1), and I. Petropavlovskikh (2). 1 - NOAA/ESRL Global Monitoring Division; 2 - CIRES, University of Colorado
Ozonesonde Profiles Measured at South Pole Station During the 2011 Ozone Hole

P1.21 R. Evans (1), G. McConville (2), S. Oltmans (1), I. Petropavlovskikh (2), D. Quincy (2). 1 - NOAA Earth System Research Laboratory; 2 - Cooperative Institute for Research in Environmental Sciences, University of Colorado
NOAA Dobson Ozone Network as part of the WMO Global Atmospheric Watch Program

P1.22 Masato Shiotani and SMILES Mission Team, Kyoto University
Superconducting Submillimeter-Wave Limb-Emission Sounder (SMILES) - Middle Atmospheric Observations from the International Space Station

P1.23 James W. Elkins, Fred L. Moore, Geoff S. Dutton, J. David Nance, Eric J. Hintsa, and Brad D. Hall, NOAA/ESRL/GMD and University of Colorado CIRES
Improving our understanding of ozone depleting substances in the upper atmosphere

P1.24 Margaret M. Hurwitz, Paul A. Newman, and Chaim I. Garfinkel, GESTAR, Morgan State University, NASA Goddard Space Flight Center
Understanding late winter variability in the Arctic: How unusual was 2011?

P1.25 Yanni Ding, Zhanqing Li, University of Maryland, College Park
Dependence of aerosol effect on meteorological variables

P1.26 U.K. Singh, V. Kumar and Joong-Bae Ahn, APEC Climate Center (APCC)
El-Nino and its Relationship to Changing Background Conditions in Ocean and

Atmosphere

P1.27 George P. Kablick III, University of Maryland, College Park
Using multi-spectral active and passive remote sensors with reanalysis to examine dust aerosol indirect effects on cirrus

P1.28 Hao He, Jeffery Stehr, Lackson Marufu, Konstantin Vinnikov, and Russell Dickerson, Dept. of Atmospheric and Oceanic Science, University of Maryland
The long-term trend of airborne measurements from 1996 to 2011: O3 and its precursors in Mid-Atlantic region

P1.29 Trude Storelvmo, Yale University
Greenhouse warming and aerosol cooling: Observations versus modeling

P1.30 Qingnan Liu, Texas A&M University
Investigation of ambient OH and HO2 concentrations using the Fluorescence Assay by Gas Expansion (FAGE) technique

P1.31 O.J. Nielsen, T.J. Wallington, M.P. Sulbaek Andersen, and M.D. Hurley, University of Copenhagen
A FTIR-smog Chamber Study to Assess the Environmental Impacts of trans-$CF_3CH=CHF$

Poster Session II

Thursday, November 10
10:00 – 12:00
Location: Pavilion Prefunction

P2.1 Bo Dong, John D. Lenters, School of Natural Resources, University of Nebraska- Lincoln
Trends in Surface Solar Radiation from Satellite Observations and its Implications for Evaporative Demand

P2.2 Meilu He, Suzanne Paulson, Arthur Winer, Suresh Dhaniyala, UCLA
Measurement and Parameterization of Pollutant Distribution near a highway

P2.3 Yuan Wang, Renyi Zhang, Ramalingam Saravanan, Guohui Li, Texas A&M University
Quantification of the Impacts of Asian pollution on Pacific Storm Track

P2.4 Maria Cazorla, Tom Hanisco, NASA GSFC
Tracking boundary layer pollution at high altitude: LIF formaldehyde detection approach

P2.5 Cameron R. Homeyer, Texas A&M University
Dynamical and Chemical Characteristics of Tropospheric Intrusions during START08

P2.6 K. Muni Krishna, Andhra University, India
Is climate change boosting the Phet cyclone to intensify into Category 4 in the Arabian Sea?

P2.7 Chunsong Lu (1,2), Yangang Liu (1), Seong Soo Yum (3), Shengjie Niu (2), Satoshi Endo (3). 1- Brookhaven National Laboratory, NY, (2) - Nanjing University of Information Science and Technology, Nanjing, China, and (3) - Yonsei University, Seoul, Korea
A New Approach for Estimating Entrainment Rate in Cumulus and Parameterization in Models

P2.8 Peres, Lucas Vaz; Pinheiro, Damaris Kirsch; Anabor, Vagner; Leme, Neusa Paes; Crespo, Natalia; Kall, Elenice, Space Science Laboratory of Santa Maria, Federal University of Santa Maria – UFSM, Santa Maria, RS, Brazil,
TWENTY YEARS OF INFLUENCE OF THE ANTARCTIC OZONE HOLE OVER SOUTH OF BRAZIL

P2.9 Yi Wang, Paul C. Bethke, University of Wisconsin-Madison,
Impacts of Climate Change on Global Food Production

P2.10 Vagner Anabor, Damaris Kirsch Pinheiro, Lucas Vaz Peres, UFSM - Universidade Federal de Santa Maria, Brazil
Synoptic patterns associated with secondary effects of the Antarctic Ozone Hole over Southern South America

P2.11 Tao Wang, Andrew Dessler, Texas A&M University
Cirrus in the tropical tropopause level - observational and model analysis

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