

NEWMAN, PAUL A.

Dr. Paul A. Newman

**Chief Scientist for Atmospheres
Earth Sciences Division
NASA Goddard Space Flight Center**

RESEARCH AREAS:

Atmospheric Dynamics, Stratospheric Climatology, Stratospheric Ozone

EDUCATION:

1984 - Ph.D. - Physics, Iowa State University, Ames, IA

1978 - B.S. - Physics, minor in Mathematics, Seattle University, Seattle, WA
Magna Cum Laude

PREVIOUS POSITIONS:

1989 - 1990 Universities Space Research Associates, GSFC

1986 - 1989 Applied Research Corp., Landover, MD

1984 - 1986 NASA Goddard Space Flight Center, Greenbelt, MD, National
Research Council Postdoctoral Fellow

1982 - 1984 Iowa State University, Ames, IA, L. H. Brown Pre-Doctoral Fellow

1978 - 1981 Iowa State University, Ames, IA, Research and Teaching Assistant in
Physics

PROFESSIONAL MEMBERSHIPS AND POSITIONS:

American Meteorological Society (1979-present)

AMS Polar Meteorology and Oceanography Committee (1994)

AMS Middle Atmosphere Committee (1994)

American Geophysical Union (1979-present)

AASE theory team member (1988-1989)

AASE II theory team member (1991-1992)

SPADE theory team member (1992-1993)

ASHOE/MAESA theory team member (1994)

ERAST leadership team member (1994-1997)

Associate Editor, Journal of Geophysical Research (1997-2004)

Stratospheric Tracers of Atmospheric Transport (STRAT) Co-Project Scientist
(1994-1997)

POLARIS Co-Project Scientist (1997)

SOLVE Co-Project Scientist (1999-2000)

International Council of Scientific Unions (ICSU), Solar-Terrestrial Energy
Program (STEP), STEP Results, Applications, and Modeling Phase
(SRAMP) Steering Committee Member

SOLVE-II Co-Project Scientist (2001-2002)

CRYSTAL-FACE ER-2 Platform Scientist (2002)

NEWMAN, PAUL A.

WMO/UNEP Scientific Assessment of Ozone Depletion: 2002, Polar Ozone
Chapter lead author
Pre-AVE Co-Project Scientist (2004)
AVE Project Scientist (2004-2009)
Network for Detection of Stratospheric Change steering group member, 1994-
2004
WMO/UNEP Scientific Assessment of Ozone Depletion: 2006, Polar Ozone
Chapter lead author
Tropical Composition, Cloud and Climate Coupling (TC4) ER-2 platform
scientist (2007)
Member of U.S. Climate Change Science Program's Synthesis and Assessment
Product 2.4: Trends in Emissions of Ozone Depleting Substances, Ozone
Layer Recovery, and Implications for Ultraviolet Radiation Exposure (2007)
Global Hawk Pacific Mission (GloPac) project scientist (2008-2011)
International Ozone Commission (2009-present)
Montreal Protocol Scientific Assessment Panel, Co-Chairman (2007-present)
Hurricane and Severe Storm Sentinel - Deputy Project Scientist
Airborne Tropical Tropopause Experiment - Global Hawk platform scientist
Stratospheric Processes And their Role in Climate, Reevaluation of the Lifetimes
of Dominant Stratospheric Ozone Depleting Substances (ODSs) activity
(2011-2014)
USGCRP Strategic Plan Author (2011)
Southeast Asia Composition, Cloud, Climate Coupling Regional Study (SEAC4
RS) Science Team (2011-2012)

AWARDS:

Magna Cum Laude, Seattle University
L. H. Brown Pre-Doctoral Fellow
Premium for Academic Excellence, 1984
National Research Council Postdoctoral Fellow, 1984-1986
NASA Group Achievement Award (AASE I)
NASA Group Achievement Award (Ozone Trends Panel)
NASA Group Achievement Award (Temperature Analysis Group)
AGU, Excellence in Reviewing award, 1993 JGR
GSFC Laboratory for Atmospheres Peer Award, 199
NASA Group Achievement Award (AASE II), 1992
AGU, Excellence in Reviewing Award, 1994 JGR
NASA Group Achievement Award (Stratospheric Forecasting), 1994
NASA Group Achievement Award (SPADE), 1994
Naval Research Laboratory's Alan Berman Research Publication Award, 1995
NASA Group Achievement Award (ASHOE/MAESA), 1995
NASA Group Achievement Award (POLARIS), 1998
NASA GSFC Special Act Award (SOLVE), 2000
GSFC Laboratory for Atmospheres Peer Award, 2001

NEWMAN, PAUL A.

Arthur S. Flemming Award, 2002
NASA Group Achievement Award (SOLVE II), 2004
NASA Group Achievement Award (SOLVE II DC-8 Science Team), 2005
GSFC Laboratory for Atmospheres Peer Award, 2006 GSFC
Webby Award, NASA's Ozone Watch, 2006 Official Nominee
William T. Pecora Award, Total Ozone Mapping Spectrometer Team, 2006
NASA Group Achievement Award (TOMS), 2006
NASA Group Achievement Award (TC-4 Science Team), 2008
Environmental Protection Agency Ozone Protection Award, 2009
Fellow of the American Geophysical Union, 2010
William Nordberg Memorial Award for Earth Sciences, 2011
American Geophysical Union 2011 Bjerknes Lecturer
Fellow of the American Meteorological Society, 2012

PUBLICATIONS:

1. "Observational Characteristics of Atmospheric Anomalies with Short Meridional and Long Zonal Scales," P. A. Newman and J. L. Stanford, *J. Atmos. Sci.*, **40**, 2547-2554, 1983.
2. "Short Meridional Scale Anomalies in the Lower Stratosphere and Upper Troposphere," P. A. Newman and J. L. Stanford, *J. Atmos. Sci.*, **42**, 2081-2092, 1985.
3. "Horizontal Mixing Coefficients Calculated from NMC Data," P. A. Newman, M. R. Schoeberl, and R. A. Plumb, *J. Geophys. Res.*, **91**, 7919-7924, 1986.
4. "Nimbus 7 Satellite Measurements of the Springtime Antarctic Ozone Decrease," R. S. Stolarski, A. J. Krueger, M. R. Schoeberl, R. D. McPeters, P. A. Newman, and J. C. Alpert, *Nature*, **322**, 808-811, 1986.
5. "October Antarctic Temperature and Total Ozone Trends from 1979-1985," P. A. Newman and M. R. Schoeberl, *Geophys. Res. Lett.*, **13**, 1206-1209, 1986.
6. "The Morphology of Antarctic Total Ozone as Seen by TOMS," M. R. Schoeberl, A. J. Krueger, and P. A. Newman, *Geophys. Res. Lett.*, **13**, 1217-1220, 1986.
7. "The Final Warming and Polar Vortex Disappearance During the Southern Hemisphere Spring," P. A. Newman, *Geophys. Res. Lett.*, **13**, 1228-1231, 1986.
8. "Mixing Rates Calculated from Potential Vorticity," P. A. Newman, M. R. Schoeberl, R. A. Plumb, and J. E. Rosenfield, *J. Geophys. Res.*, **93**, 5221-5240, 1988.
9. "Effect of Computed Horizontal Diffusion Coefficients on Two-Dimensional N₂O Model Distributions," C. H. Jackman, P. A. Newman, P. D. Guthrie, and M. R. Schoeberl, *J. Geophys. Res.*, **93**, 5213-5219, 1988.
10. "Coherent Ozone-Dynamical Changes during the Southern Hemisphere Spring, 1979-1986," P. A. Newman, and W. J. Randel, *J. Geophys. Res.*, **93**, 12,585-12,606, 1988.
11. "Antarctic Springtime Ozone Depletion Computed from Temperature Observations," J. E. Rosenfield, M. R. Schoeberl, and P. A. Newman, *J. Geophys. Res.*, **93**, 3833-3849, 1988.
12. "The Morphology and Meteorology of Southern Hemisphere Spring Total Ozone Mini-Holes," P. A. Newman, L. R. Lait, and M. R. Schoeberl, *Geophys. Res. Lett.*, **15**, 923-926, 1988.
13. "Quasi-biennial Modulation of the Antarctic Ozone Depletion," L. R. Lait, M. R. Schoeberl, and P. A. Newman, *J. Geophys. Res.*, **94**, 11,559-11,571, 1989.
14. "Reconstruction of the Constituent Distribution and Trends in the Antarctic Polar Vortex from ER-2 Flight Observation," M. R. Schoeberl, L. R. Lait, M. Proffitt, P. A. Newman, R. L. Martin, D. L. Hartmann, M. Loewenstein, J. Podolske, S. E. Strahan, J. Anderson, K. R. Chan, and B. Gary, *J. Geophys. Res.*, **94**, 16815-16846, 1989.
15. "Potential Vorticity Estimates in the South Polar Vortex from ER-2 Flight Data," D.L. Hartmann, K. R. Chan, B. L. Gary, M. R. Schoeberl, P. A. Newman, R. L.

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16. "Evidence of the Mid-Latitude Impact of Antarctic Ozone Depletion," R. J. Atkinson, W. A. Mathews, P. A. Newman, and R. A. Plumb, *Nature*, **340**, 290-293, 1989.
 17. "Total Ozone during the 1988-1989 Northern Hemisphere Winter," P. A. Newman, R. S. Stolarski, M. R. Schoeberl, L. R. Lait, and A. J. Krueger, *Geophys. Res. Lett.*, **17**, 317-320, 1990.
 18. "Stratospheric Temperatures During the 88-89 Northern Hemisphere Winter," P. A. Newman, L. R. Lait, M. R. Schoeberl, and R. M. Nagatani, *Geophys. Res. Lett.*, **17**, 329-332, 1990.
 19. "A Comparison of Arctic Lower Stratospheric Winter Temperatures for 1988-89 with Temperatures Since 1964," R. M. Nagatani, A. J. Miller, M. E. Gelman, and P. A. Newman, *Geophys. Res. Lett.*, **17**, 333-336, 1990.
 20. "Stratospheric Temperatures During AASE: Results From STRATAN," R. B. Rood, P. A. Newman, D. J. Lamich, L. R. Lait, and R. Chan, *Geophys. Res. Lett.*, **17**, 337-340, 1990.
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 24. "Airborne Measurements of Stratospheric Constituents Over the Arctic in the Winter of 1989," W. Mankin, M. Coffey, A. Goldman, M. Schoeberl, L. Lait, and P. Newman, *Geophys. Res. Lett.*, **17**, 473-476, 1990.
 25. "Reconstruction of O₃ and N₂O Fields from ER-2, DC-8, and Balloon Observations," L. R. Lait, M. R. Schoeberl, P. A. Newman, M. H. Proffitt, K. K. Kelly, M. Loewenstein, J. R. Podolske, S. E. Strahan, K. R. Chan, B. Gary, J. Margitan, E. Browell, M. P. McCormick, and A. Torres, *Geophys. Res. Lett.*, **17**, 521-524, 1990.
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32. "Spatial and Temporal Variability of the Extent of Chemically Processed Stratospheric Air," J. A. Kaye, A. R. Douglass, R. B. Rood, R. S. Stolarski, P. A. Newman, D. J. Allen, and E. M. Larson, *Geophys. Res. Lett.*, **18**, 29-32, 1991.
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41. "The Structure of the Polar Vortex," M. R. Schoeberl, L. R. Lait, P. A. Newman, J. E. Rosenfield, *J. Geophys. Res.*, **97**, 7859-7882, 1992.
42. "A Simulation of the Cerro Hudson SO₂ Cloud," M. R. Schoeberl, S. Doiron, L. R. Lait, P. A. Newman, and A. J. Krueger, *J. Geophys. Res.*, **98**, 2949-2955, 1992.
43. "Chemical Loss of Ozone in the Arctic Polar Vortex in the Winter of 1991-1992," R. J. Salawitch, C. F. Wofsy, E. W. Gottlieb, D. W. Toohey, L. M. Avallone, L. R. Lait, P. A. Newman, M. R. Schoeberl, M. Loewenstein, J. R. Podolske, S. E. Strahan, A. Weaver, M. H. Proffitt, C. R. Webster, R. D. May, D. W. Fahey, D. Baumgardner, J. E. Dye, J. C. Wilson, K. K. Kelly, J. W. Elkins, K. R. Chan, and J. G. Anderson, *Science*, **261**, 1146-1149, 1993.
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46. "Chlorine Chemistry on Polar Stratospheric Cloud Particles in the Arctic Winter," C. R. Webster, R. D. May, D. W. Toohey, L. M. Avallone, J. G. Anderson, P. Newman, L. Lait, M. R. Schoeberl, J. W. Elkins, and K. R. Chan, *Science*, **261**, 1130-1134, 1993.
47. "The Evolution of ClO and NO along Air Parcel Trajectories," M. R. Schoeberl, A. R. Douglass, R. S. Stolarski, P. A. Newman, L. R. Lait, D. Toohey, L. Avallone, J. G. Anderson, W. Brune, D. W. Fahey, and K. Kelly, *Geophys. Res. Lett.*, **20**, 2511-2514, 1993.
48. "Volcanic and Wave-Cloud Optical Depth Spectra from DC-8 Tracking Sunphotometer Measurements: 1. Results vs. Latitude, Time, and Vortex Structure," P. B. Russell, J. M. Livingston, R. F. Pueschel, J. A. Reagan, E. V. Browell, G. C. Toon, P. Newman, L. R. Lait, M. R. Schoeberl, and B. M. Herman, *Geophys. Res. Lett.*, **22**, 2571-2574, 1993.
49. "AASE II Stratospheric Meteorological Conditions," P. Newman, L. Lait, M. Schoeberl, E. Nash, K. Kelly, D. W. Fahey, R. Nagatani, D. Toohey, J. Anderson, and L. Avallone, *Science*, **261**, 1143-1146, 1993.
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51. "Interpretation of NO_x/NO_y Observations from AASE-II Using a Model of Chemistry Along Trajectories," S. R. Kawa, D. W. Fahey, J. C. Wilson, M. R. Schoeberl, A. R. Douglass, R. S. Stolarski, E. L. Woodbridge, H. Jonsson, L. R. Lait, P. A. Newman, M. H. Proffitt, D. W. Toohey, D. E. Anderson, M. Loewenstein, K. R. Chan, C. R. Webster, R. May, and K. K. Kelly, *Geophys. Res. Lett.*, **20**, 2507-2510, 1993.

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63. "Meteor-3 Total Ozone Mapping Spectrometer Observations of the 1993 Ozone Hole", J. Herman, P. Newman, R. McPeters, A. Krueger, P. Bhartia, C. Seftor, O. Torres, G. Jaross, R. Cebula, D. Larko, C. Wellemeyer, *J. Geophys. Res.*, **100**, 2973-2983, 1995.
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66. "A Multiple Level Trajectory Analysis of Vortex Filaments," M. R. Schoeberl and P. A. Newman, *J. Geophys. Res.*, **100**, 25,801-25,815, 1995.
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