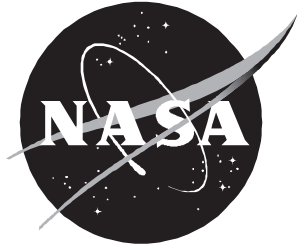


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*Susan H. Stewart, Compiler
Langley Research Center, Hampton, Virginia*

December 2003

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Preface

This report contains a listing of the NASA Langley Research Center's publicly available scientific and technical research output for C.Y. 2002.

The intent of this report is to provide a greater awareness of the broad scope of results and the importance of the research and development work conducted by scientists and engineers at Langley. This current awareness is mandated by the National Aeronautics and Space Act of 1958, which provides for the widest practical dissemination of NASA research.

During C.Y. 2002, Langley's contributions to NASA and non-NASA literature included 16 Technical Publications, 3 Conference Publications, 81 Technical Memorandums, 107 Contractor Reports, 146 Journal Articles and Book Publications, 625 Meeting Presentations, 155 Technical Talks, and 17 Patents.

Introduction

The NASA Langley Research Center is one of the Nation's leading laboratories for research and development in the sciences of aeronautics and space technology. Langley conducts basic and applied research in the areas of aerospace systems, concepts, and analysis, aerodynamics, aerothermodynamics, and acoustics, structures and materials, airborne systems, atmospheric sciences, and systems engineering.

This document contains a bibliography of Langley's publicly available scientific and technical research output for 2002 which is processed through the Center's Office of the Chief Information Officer to become an integral part of NASA's Agency-wide Scientific and Technical Information (STI) system. The results of Langley's research are disseminated in a variety of NASA and non-NASA scientific and technical media and information systems. This document is intended to be a reference summary for researchers and a current awareness publication for the scientific, research, and academic community. Details of the availability of the research references in this document are found in the section, "Availability," on page vi.

Many Langley reports are available electronically on the Langley Technical Reports Server (LTRS) at <http://techreports.larc.nasa.gov/ltrs/>. The relative Uniform Resource Locators are noted below citations for reports available electronically.

The citations are grouped by the NASA Aeronautics and Space Database subject categories and listed alphabetically by author or innovator. The Langley organization to which the senior author or innovator is assigned and the Program Number are noted below citations when appropriate and included in the indexes.

Patents listed are those which were issued in 2002 and owned by Langley Research Center.

Publication of some journal articles was not known at press time for the 2001 issue of this document. These articles are therefore listed in the 2002 issue.

Availability

<u>Category</u>	<u>Source</u>
NASA Reports	NASA Center for AeroSpace Information (CASI) 7121 Standard Drive Hanover, MD 21076-1320 (301) 621-0390 National Technical Information Service (NTIS) 5285 Port Royal Road Springfield, VA 22161-2171 (703) 605-6000
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Scientific and Technical Publications

Aeronautics

Category 01 Aeronautics (General)

- 1** DeLoach, R.: MDOE Perspectives on Wind Tunnel Testing Objectives. Presented at 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, June 24-26, 2002, St. Louis, Missouri.
Organization RB Program No. 992-20-80
- 2** DeLoach, R.: Tactical Defenses Against Systematic Variation in Wind Tunnel Testing. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0885.
Organization RB Program No. 708-72-40
- 3** DeLoach, R.; Cler, D. L.; and Graham, A. B.: Fractional Factorial Experiment Designs to Minimize Configuration Changes in Wind Tunnel Testing. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0746.
Organization RB Program No. 708-72-42
- 4** Guynn, M. D.; and Olson, E. D.: Evaluation of an Aircraft Concept With Over-Wing, Hydrogen-Fueled Engines for Reduced Noise and Emissions. NASA/TM-2002-211926, September 2002, 38 p.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/tm/NASA-2002-tm211926.pdf>
Organization RA Program No. 706-87-11
- 5** Khorrami, M. R.; Lockard, D. P.; and Li, F.: Computational Aeroacoustic Analysis of a Landing Gear. Presented at 6th CEAS Workshop on CFD and CAA, November 7-8, 2002, Athens, Greece.
Organization RB Program No. 781-10-11
- 6** Pritchard, J. I.; Buehrle, R. D.; Pappa, R. S.; and Grosveld, F. W.: Comparison of Modal Analysis Methods Applied to a Vibro-Acoustics Test Article. Presented at IMAC-XX: A Conference & Exposition on Structural Dynamics, February 4-7, 2002, Los Angeles, California. In Proceedings.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/mtg/NASA-2002-imacxx-jip.pdf>
Organization RC Program No. 706-25-31
- 7** Washburn, A. E.; Gorton, S. A.; and Anders, S. G.: Snapshot of Active Flow Control Research at NASA Langley. Presented at 1st AIAA Flow Control Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3155.
Organization RB Program No. 706-32-11

Category 02 Aerodynamics

- 8** Alexandrov, N. M.; *et al.*: Opportunities for Breakthroughs in Large-Scale Computational Simulation and Design. NASA/TM-2002-211747, June 2002, 27 p.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/tm/NASA-2002-tm211747.pdf>
Organization RA Program No. 706-31-21
- 9** Atkins, H. L.: Local Self-Adapting Solution Algorithms for Discontinuous Galerkin Methods. Presented at SIAM 2002 Annual Meetings, July 8-12, 2002, Philadelphia, Pennsylvania.
Organization RB Program No. 706-31-21
- 10** Atkins, H. L.: A High-Order Discontinuous Galerkin Method for Aeroacoustics Analysis. Presented at Deutsche Forschungsanstalt für Luft-und Raumfahrt (DLR), September 24, 2002, Braunschweig, Germany.
Organization RB Program No. 706-32-11
- 11** Atkins, H. L.: A High-Order Discontinuous Galerkin Method for Aeroacoustics Analysis. Presented at 3rd Simulation of Wing-Flow Noise Generation (SWING) Workshop, September 26-27, 2002, Stuttgart, Germany.
Organization RB Program No. 706-32-11
- 12** Balakumar, P.; Zhao, H.; and Atkins, H. L.: Stability of Hypersonic Boundary-Layers Over a Compression Corner. Presented at 32nd AIAA Fluid Dynamics Conference and Exhibit, June 24-26, 2002, St. Louis, Missouri.
Organization RB Program No. 706-63-11
- 13** Bijl, H.; Carpenter, M. H.; Vatsa, V. N.; and Kennedy, C. A.: Implicit Time Integration Schemes for the Unsteady Compressible Navier-Stokes Equations: Laminar Flow. *Journal of Computational Physics*, Volume 1791, No. 1, June 10, 2002, p. 313-329.
Organization RB Program No. 706-31-21
- 14** Buning, P. G.: Consolidation of Time-Accurate, Moving Body Capabilities in OVERFLOW. Presented at 6th Overset Composite Grid and Solution Technology Symposium, October 8-10, 2002, Fort Walton Beach, Florida.
Organization RB Program No. 706-31-61
- 15** Buning, P. G.; Allen, B. G.; and Waithe, K. A.: Design Tool Development for Active Flow Control. Presented at UEET Technology Forum, October 28-29, 2002, Cleveland, Ohio.
Organization RB Program No. 714-05-10
- 16** Carlson, J. R.; and Gatski, T. B.: Elliptic Relaxation of a Tensor Representation for the Redistribution Terms in a Reynolds Stress Turbulence Model. NASA/TM-2002-211750, July 2002, 23 p.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/tm/NASA-2002-tm211750.pdf>
Organization RB Program No. 706-31-11

- 17** Carlson, J. R.; and Gatski, T. B.: Elliptic Relaxation of a Tensor Representation of the Pressure-Strain and Dissipation Rate. Presented at 2002 Joint US ASME-European Fluids Engineering Division Summer Meeting, July 14-18, 2002, Montreal, Canada. In Proceedings, Paper No. FEDSM2002-31259.
Organization RB Program No. 706-31-11
- 18** Casper, J. H.; and Farassat, F.: A New Time Domain Formulation for Broadband Noise Predictions. *International Journal of Aeroacoustics*, Volume 1, No. 3, 2002, p. 207-240.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/jp/NASA-2002-ija-jhc.pdf>
Organization RB Program No. 781-10-11
- 19** Casper, J. H.; and Farassat, F.: Trailing Edge Noise Prediction Based on a New Acoustic Formulation. Presented at 8th AIAA/CEAS Aeroacoustics Conference, June 17-19, 2002, Breckenridge, Colorado. AIAA Paper No. 2002-2477.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-2477.pdf>
Organization RB Program No. 781-10-11
- 20** Casper, J. H.; and Farassat, F.: Broadband Noise Predictions Based on a New Aeroacoustic Formulation. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0802.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-0802.pdf>
Organization RB Program No. 781-10-11
- 21** Chang, C-L.: Thermal Effect on Crossflow Instability in Supersonic Boundary Layers. Presented at 14th U.S. National Congress on Theoretical and Applied Mechanics, June 23-28, 2002, Blacksburg, Virginia.
Organization RB Program No. 706-31-11
- 22** Chen, F-J.; and Beeler, G. B.: Virtual Shaping of a Two-Dimensional NACA 0015 Airfoil Using Synthetic Jet Actuator. Presented at 1st AIAA Flow Control Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3273.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-3273.pdf>
Organization RB Program No. 706-31-11
- 23** Choudhari, M. M.; Khorrami, M. R.; Lockard, D. P.; Atkins, H. L.; and Lilley, G. M.: Slat Cove Noise Modeling: A *Posterior* Analysis of Unsteady RANS Simulations. Presented at 8th AIAA/CEAS Aeroacoustics Conference, June 17-19, 2002, Breckenridge, Colorado. AIAA Paper No. 2002-2468.
Organization RB Program No. 781-10-11
- 24** Curtin, M. M.; Bogue, D. R.; Om, O.; Rivers, S. M.; Pendergraft, O. C., Jr.; and Wahls, R. A.: Investigation of Transonic Reynolds Number Scaling Methods on a Twin-Engine Transport. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0420.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-0420.pdf>
Organization RB Program No. 706-21-11

- 25** Darden, C. M.: Affordable, Acceptable Supersonic Flight: Is It Near? Presented at JSASS 16th International Sessions in 40th Aircraft Symposium, October 9-11, 2002, Yokohama, Japan. Paper No. IL1.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/mtg/NASA-2002-16jsass-cmd.pdf>
 Organization OH Program No. 710-10-11
- 26** Deere, K. A.; and Pandya, M. J.: Propulsion Simulations With the Unstructured-Grid CFD Tool, TetrUSS. Presented at 32nd AIAA Fluid Dynamics Conference and Exhibit, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-2980.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-2980.pdf>
 Organization RB Program No. 706-32-11
- 27** Englar, R. J.; and Campbell, B. A.: Development of Pneumatic Channel Wing Powered-Lift Advanced Super-STOL Aircraft. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-2929.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-2929.pdf>
 Organization RB Program No. 274-00-02
- 28** Englar, R. J.; and Campbell, B. A.: Pneumatic Channel Wing Powered-Lift Advanced Super-STOL Aircraft. Presented at 1st AIAA Flow Control Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3275.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-3275.pdf>
 Organization RB Program No. 274-00-02
- 29** Frink, N. T.; Bauer, S. X.; and Hunter, C. A.: Simulation of Flows With Passive Porosity. Presented at 23rd International Council of the Aeronautical Sciences (ICAS) Congress, September 8-13, 2002, Toronto, Canada. Paper No. ICAS 2002-2.10.2.
 Organization RB Program No. 706-31-31
- 30** Gainer, T. G.: A Discrete-Vortex Method for Studying the Wing Rock of Delta Wings. NASA/TP-2002-211965, December 2002, 79 p.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/tp/NASA-2002-tp211965.pdf>
 Organization RB Program No. 537-07-22
- 31** Gally, T.; and Campbell, R. L.: Constrained Aerothermodynamic Design of Hypersonic Vehicles. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3139.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-3139.pdf>
 Organization RB Program No. 706-21-11
- 32** Gatlin, G. M.; Parker, P. A.; and Owens, L. R., Jr.: Advancement of Semi-Span Testing at the National Transonic Facility. *Journal of Aircraft*, Volume 39, No. 2, March–April 2002, p. 339-353.
 Organization RB Program No. 992-20-08

- 33** Ghaffari, F.; Biedron, R. T.; and Luckring, J. M.: Numerical Viscous Flow Analysis of an Advanced Semi-Span Diamond-Wing Model at High-Lift Conditions. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0846.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-0846.pdf>
 Organization RB Program No. 522-31-31
- 34** Ghaffari, F.; Biedron, R. T.; and Luckring, J. M.: Turbulent Navier-Stokes Flow Analysis of an Advanced Semispan Diamond-Wing Model in Tunnel and Free Air at High-Lift Conditions. NASA/TP-2002-211779, August 2002, 39 p.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/tp/NASA-2002-tp211779.pdf>
 Organization RB Program No. 522-31-31
- 35** Ghosh, A.; Machida, R.; and Everhart, J. L.: Performance of TWNTN4A Correction Code at the 0.3-Meter Transonic Cryogenic Tunnel at NASA Langley. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri. AIAA 2002-3061.
 Organization RB Program No. 992-20-03
- 36** Gorton, S. A.; Berry, J. D.; Hodges, W. T.; and Reis, D. G.: Rotor Wake Study Near the Horizontal Tail of a T-Tail Configuration. *Journal of Aircraft*, Volume 39, No. 4, July–August 2002, p. 645-653.
 Organization RB Program No. 282-10-01
- 37** Gorton, S. A.; and Hoad, D. R.: Assessment of Blade Angle-of-Attack From Experimental Inflow Data. *Journal of Aircraft*, Volume 39, No. 5, September–October 2002, p. 722-730.
 Organization RB Program No. 282-10-01
- 38** Goyne, C. P.; Rodriguez, C. G.; Krauss, R. H.; McDaniel, J. C.; and McClinton, C. R.: Experimental and Numerical Study of a Dual-Mode Scramjet Combustor. Presented at AIAA/AAAF 11th International Space Planes and Hypersonic Systems and Technologies Conference, September 29–October 4, 2002, Orleans, France.
 Organization OC Program No. 706-51-71
- 39** Green, L. L.; Lin, H-Z.; and Khalessi, M. R.: Probabilistic Methods for Uncertainty Propagation Applied to Aircraft Design. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3140.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-3140.pdf>
 Organization RA Program No. 706-31-61
- 40** Green, L. L.; and Penny, S. G.: Approximate Statistical Moment Method for Uncertainty Propagation Applied to Aircraft Design Optimization. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri.
 Organization RA Program No. 705-01-11

- 41** Gumbert, C. R.; Newman, P. A.; and Hou, G. J.: Effect of Random Geometric Uncertainty on the Computational Design of a 3-D Flexible Wing. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No, 2002-2806.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-2806.pdf>
Organization RA Program No. 706-31-61
- 42** Hamner, M. P.; Popernack, T. G., Jr.; Owens, L. R., Jr.; and Wahls, R. A.: Using Temperature Sensitive Paint Technology. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0742.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-0742.pdf>
Organization RB Program No. 706-31-31
- 43** Hensch, M. J.: Statistical Analysis of CFD Solutions From the Drag Prediction Workshop. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0842.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-0842.pdf>
Organization RB Program No. 706-31-31
- 44** Hensch, M. J.; Tuttle, D. G.; Houlden, H. P.; and Graham, A. B.: Applications of Statistical Process Control to Wind Tunnel Measurements at Langley Research Center. Presented at 22nd AIAA Aerodynamic Measurement Technology and Ground Testing Conference, June 24-26, 2002, St. Louis, Missouri.
Organization RB Program No. 706-31-31
- 45** Horvath, T. J.; O'Connell, T. F.; Cheatwood, F. M.; Prabhu, R. K.; and Alter, S. J.: Experimental Hypersonic Aerodynamic Characteristics of the 2001 Mars Surveyor Precision Lander With Flap. Presented at AIAA Atmospheric Flight Mechanics Conference & Exhibit, August 5-8, 2002, Monterey, California. AIAA Paper No. 2002-4408.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-4408.pdf>
Organization RB Program No. 896-30-00
- 46** Hu, F. Q.; and Atkins, H. L.: Eigensolution Analysis of the Discontinuous Galerkin Method with Non-Uniform Grids 1—One Space Dimension. *Journal of Computational Physics*, Volume 182, No. 2, November 1, 2002, p. 516-545.
Organization RB Program No. 706-31-21
- 47** Hu, F. Q.; and Atkins, H. L.: A Discrete Analysis of Wave Propagation for the Discontinuous Galerkin Method With Non-Uniform Grids. Presented at ICIAM Conference, July 7-11, 2002, Sydney, Australia.
Organization RB Program No. 762-20-11

- 48** Jenkins, L. N.; Gorton, S. A.; and Anders, S. G.: Flow Control Device Evaluation for an Internal Flow With an Adverse Pressure Gradient. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0266.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-0266.pdf>
Organization RB Program No. 714-05-10
- 49** Jones, G. S.; Viken, S. A.; Washburn, A. E.; Jenkins, L. N.; and Cagle, C. M.: An Active Flow Circulation Controlled Flap Concept for General Aviation Aircraft Applications. Presented at 1st AIAA Flow Control Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3157.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-3157.pdf>
Organization RB Program No. 706-32-11
- 50** Kegerise, M. A.; Cattafesta, L. N., III; and Ha, C-S.: Adaptive Identification and Control of Flow-Induced Cavity Oscillations. Presented at 1st AIAA Flow Control Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-3158.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-3158.pdf>
Organization RB Program No. 706-32-11
- 51** Khorrami, M. R.; Berkman, M. E.; Li, F.; and Singer, B. A.: Computational Simulations of a Three-Dimensional High-Lift Wing. Presented at 20th AIAA Applied Aerodynamics Conference, June 24-26, 2002, St. Louis, Missouri. AIAA Paper No. 2002-2804.
<http://techreports.larc.nasa.gov/ltrs/PDF/2002/aiaa/NASA-aiaa-2002-2804.pdf>
Organization RB Program No. 781-10-11
- 52** Khorrami, M. R.; Li, F.; and Choudhari, M. M.: A Novel Approach for Reducing Rotor Tip-Clearance Induced Noise in Turbofan Engines. *AIAA Journal*, Volume 40, No. 8, August 2002, p. 1518-1528.
Organization RB Program No. 781-10-11
- 53** Lamar, J. E.: Cranked Arrow Wing Aerodynamics Project (CAWAP). Presented at University of Glasgow Seminar, October 1, 2002, Glasgow, United Kingdom.
Organization RB Program No. 706-31-31
- 54** Lamar, J. E.: The Search for Multiple Vortices on Two Fighter Aircraft as Aided by Color. Presented at University of Bristol Graduate Seminar, September 30, 2002, Bristol, United Kingdom.
Organization RB Program No. 706-31-31
- 55** Levy, D. W.; Zickuhr, T.; Vassberg, J. C.; Agrawal, S.; Wahls, R. A.; Pirzadeh, S. Z.; and Hensch, M. J.: Summary of Data From the First AIAA CFD Drag Prediction Workshop. Presented at 40th AIAA Aerospace Sciences Meeting and Exhibit, January 14-17, 2002, Reno, Nevada. AIAA Paper No. 2002-0841.
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- 663** Crawford, J. H.: An Overview of the TRACE-P Experiment. Presented at Joint CACGP/IGAC 2002 International Symposium, September 18-25, 2002, Crete, Greece.
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- 664** Crawford, J. H.; *et al.*: Clouds and Trace Gas Trends Observed During TRACE-P. Presented at Joint CACGP/IGAC 2002 International Symposium, September 18-25, 2002, Crete, Greece.
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- 668** Hair, J. W.; Hostetler, C. A.; and Cook, A. L.: Description and Simulation of a Compact Airborne High Spectral Resolution Lidar to Measure Aerosol Extinction. Presented at International Geoscience & Remote Sensing Symposium, June 24-28, 2002, Toronto, Canada.
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- 669** Johnson, D. G.: Isotopic Composition of Stratospheric Water Vapor: Implications for Transport Near Tropical Tropopause. Presented at Spring Meeting of the American Geophysical Union, May 31, 2002, Washington, DC.
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- 670** Mertens, C. J.; Mlynczak, M. G.; Lopez-Puertas, M.; Wintersteiner, P. P.; Picard, R. H.; Winick, J. R.; Gordley, L. L.; and Russell, J. M., III: Retrieval of Kinetic Temperature and Carbon Dioxide Abundance From Non-Local Thermodynamic Equilibrium Limb Emission Measurements Made by the SABER Experiment on the TIMED Satellite. Presented at SPIE's 9th International Symposium on Remote Sensing, September 23-27, 2002, Crete, Greece. In Proceedings, Paper No. 4882-23.
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- 672** Pierce, R. B.; Al-Saadi, J. A.; Fairlie, T. D.; Natarajan, M.; Harvey, V. L.; Grose, W. L.; Russell, J. M., III; Bevilacqua, R. M.; Eckermann, S. D.; Fahey, D. W.; Popp, P.; Toon, G. C.; Richard, E.; Stimpfle, R. M.; *et al.*: Large-Scale Chemical Evolution of the Arctic Vortex During the 1999-2000 Winter: HALOE/POAM3 Lagrangian Photochemical Modeling for the SAGE III Ozone Loss and Validation Experiment (SOLVE) Campaign. *Journal of Geophysical Research*, Volume 107, No. D24, December 27, 2002.
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- 674** Pippin, M. R.; Bertman, S.; Crawford, J. H.; Hamlin, A. J.; *et al.*: Sensitivity of MPAN at the PROPHET Site. Presented at American Geophysical Union 2002 Fall Meeting, December 6-10, 2002, San Francisco, California.
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- 676** Poole, L. R.; Winker, D. M.; Pelon, J.; and McCormick, M. P.: CALIPSO: Global Aerosol and Cloud Observations From Lidar and Passive Instruments. Presented at SPIE's 9th International Symposium on Remote Sensing, September 23-27, 2002, Crete, Greece. Paper No. 4881A-56.
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- 677** Rinsland, C. P.: NASA Contributions to the Atmospheric Chemistry Experiment (ACE) Solar Occultation Mission. Presented at Atmospheric Chemistry Experiment (ACE) Science Team Meeting, April 29–May 5, 2002, Waterloo, Canada.
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- 678** Zhou, D. K.; Smith, W. L.; and Larar, A. M.: NAST-1 Results From the CLAMS Experiment. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC.
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Category 43 Earth Resources and Remote Sensing

- 679** Bushnell, D. M.: Longer Term Aspects of Conus Defense/Prospective Solutions. Presented at SPIE's Technologies, Systems, and Architectures for Trans-National Defense, AeroSense '02, April 1-5, 2002, Orlando, Florida.
Organization A Program No. 282-10-01
- 680** Currey, J. C.: Geolocation Assessment Algorithm for CALIPSO Using Coastline Detection. NASA/TP-2002-211956, November 2002, 27 p.
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Organization RE Program No. 259-40-01
- 681** Daniels, T. S.: New AMDAR Systems and Communications. Presented at World Meteorological Organization, September 30–October 4, 2002, Toronto, Canada.
Organization RD Program No. 722-64-13
- 682** Daniels, T. S.: Tropospheric Airborne Meteorological Data Reporting (TAMDAR) Sensor Development. Presented at 3rd Annual NASA Weather Accident Prevention Project Review, Boston, Massachusetts, November 20-21, 2002.
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- 683** Singh, U. N.; and Heaps, W. S.: Integrated NASA Lidar System Strategy for Remote Sensing From Space. Presented at SPIE's 9th International Symposium on Remote Sensing, September 23-27, 2002, Crete, Greece.
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- 684** Singh, U. N.; and Heaps, W. S.: Integrated NASA Lidar Systems Strategy for Space-Based Remote Sensing. Presented at 21st International Laser Radar Conference, July 8-12, 2002, Quebec City, Canada.
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- 685** Thomason, L. W.: Remote Sensing of the Stratospheric Aerosol Background. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC. In Proceedings, p. 80.
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Category 45 Environment Pollution

- 686** Grant, W. B.: An Overview of the Activities of the Laser Applications Group at the NASA Langley Research Center. Presented at Institute for Tropospheric Research Seminar, March 7, 2002, Leipzig, Germany.
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- 687** Grant, W. B.; Anderson, B. E.; Browell, E. V.; Butler, C. F.; Brackett, V. G.; and Jordan, C. E.: Optical Modeling and Interpretation of TRACE-P Aerosol Measurements. Presented at 21st International Laser Radar Conference, July 8-12, 2002, Quebec City, Canada.
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- 688** Grant, W. B.; and Browell, E. V.: Applications of Airborne UV Differential Absorption Lidar (DIAL) to Regional Scale Ozone and Aerosols. Presented at Fourth Symposium on the Urban Environment, May 20-24, 2002, Norfolk, Virginia. In Proceedings, Paper No. J4.6.
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- 689** Grant, W. B.; Browell, E. V.; Butler, C. F.; Gibson, S. C.; Kooi, S. A.; and Von der Gathen, P.: Use of Vortex-Averaged Airborne Differential Absorption Lidar (DIAL) Ozone Profiles on N₂O Subsidence Isopleths to Estimate Arctic Polar Vortex Ozone Loss During the Winter of 1999/2000. Presented at Alfred Wegener Institute for Polar and Marine Research Workshop on Arctic Ozone Loss, March 4-6, 2002, Potsdam, Germany.
 Organization RE Program No. 291-07-07
- 690** Ismail, S.; Koch, G. J.; Browell, E. V.; Singh, U. N.; Abedin, M. N.; Yu, J.; and Hair, J. W.: A 2-Micron DIAL System for Profiling Atmospheric CO₂. Presented at 21st International Laser Radar Conference, July 8-12, 2002, Quebec City, Canada. In Proceedings, Pt. 1, p. 93-96.
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- 691** Ismail, S.; Koch, G. J.; Browell, E. V.; Singh, U. N.; Abedin, M. N.; Yu, J.; and Hair, J. W.: Development of a 2-Micron Lidar System for Profiling Atmospheric CO₂. Presented at SPIE's 3rd International Asia-Pacific Symposium on Remote Sensing of the Atmosphere, Ocean, Environment, and Space, October 23-27, 2002, Hangzhou, China.
 Organization RE Program No. 622-29-26
- 692** Larar, A. M.; Cook, W. B.; Puschell, J. J.; and Skinner, W. R.: Multispectral Imaging Fabry-Perot Interferometer for Tropospheric Trace Species Detection. Presented at SPIE's 3rd International Asia-Pacific Symposium on Remote Sensing of the Atmosphere, Ocean, Environment, and Space, October 23-27, 2002, Hangzhou, China.
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- 693** Wei, C-F.; Kotamarthi, V. R.; Ogunsola, O. J.; Wuebbles, D. J.; Brasseur, G. P.; Blake, D. R.; Brune, B.; Browell, E. V.; Avery, M. A.; Sachse, G. W.; and Sandholm, S. T.: Seasonal Variability of Ozone Mixing Ratios and Budgets in the Tropical Southern-Pacific: A GCTM Perspective. *Journal of Geophysical Research*, Volume 107, No. D23, December 16, 2002.
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- 694** Yue, G. K.; Lu, C-H.; and Mohnen, V. A.: Comparing the Retrieval of Aerosol Properties From Several Solar Occultation Measurements. Presented at American Geophysical Union 2002 Fall Meeting, December 6-10, 2002, San Francisco, California.
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- 695** Yue, G. K.; and Wang, P-H.: Comparing SAM II and SAGE II (v6.10) Extinction Profiles Between 1984 and 1992. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC.
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- 696** Callis, L. B., Jr.; Natarajan, M.; and Lambeth, J. D.: Observed and Calculated Mesospheric NO, 1992–1997. *Geophysical Research Letters*, Volume 29, No. 2, January 15, 2002, p. 17-1–17-4.
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- 697** Choi, W.; Lee, H-A.; Grant, W. B.; Park, J. H.; Holton, J. R.; Lee, K-M.; and Naujokat, B.: On the Secondary Meridional Circulation Associated With the Quasi-Biennial Oscillation. *Tellus Series B—Chemical and Physical Meteorology*, Volume 54, No. 4, September 2002, p. 395-406.
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- 698** Clough, S. A.; Worden, J.; Brown, P. D.; Shephard, M. W.; Rinsland, C. P.; and Beer, R.: Retrieval of Tropospheric Ozone From Simulations of Limb Spectral Radiances as Observed From Space. *Journal of Geophysical Research*, Volume 107, No. D21, November 16, 2002.
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- 699** Considine, D. B.; Douglass, A. R.; Strahan, S.; and Rotman, D. A.: Polar Ozone Response to Predicted Changes in Source Gas Emissions Between 2000 and 2030 in the GMI 3D CTM. Presented at 12th Conference on the Middle Atmosphere, November 4-8, 2002, San Antonio, Texas.
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- 700** Goldman, A.; Rinsland, C. P.; Perrin, A.; Flaud, J-M.; Barbe, A.; Camy-Peyret, C.; Coffey, M. T.; Mankin, W. G.; Hannigan, J. W.; Stephen, T. M.; Devi, V. M.; and Smith, M. A.: Weak Ozone Isotopic Absorption in the 5 μm Region From High Resolution FTIR Solar Spectra. *Journal of Quantitative Spectroscopy and Radiative Transfer*, Volume 74, No. 1, July 1, 2002, p. 133-138.
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- 701** Katzberg, S. J.; Masters, D.; and Torres, O.: GPS Reflection Sensor for Guidance, Altimetry and Detection. Presented at AIAA's 1st Conference and Workshop on Unmanned Aerospace Vehicles, Systems, Technologies, and Operations, May 20-22, 2002, Portsmouth, Virginia.
 Organization RA Program No. 662-70-18
- 702** Levine, J. S.: Measuring and Monitoring Fires From Aircraft and Spacecraft. Presented at 2002 Mid-Atlantic Expo & Symposium, February 20-24, 2002, Virginia Beach, Virginia.
 Organization RE Program No. 274-00-00
- 703** Levine, J. S.: Biomass Burning and the Terrestrial Carbon Budget. Presented at Wengen 2002—International Workshop on Quantifying Terrestrial Carbon Sinks: Science, Technology and Policy, September 25-27, 2002, Wengen, Switzerland.
 Organization RE Program No. 274-00-00
- 704** Levine, J. S.; Kist, E. H.; Davis, R. E.; Tappan, N. D.; Remus, R. W.; and Baker, N. R.: The Temperature Distribution and Temperature History of a Vegetation Fire. Presented at Workshop on Improving Global Estimates of Atmospheric Emissions From Biomass Burning, July 17-19, 2002, College Park, Maryland.
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- 705** Mertens, C. J.; Mlynczak, M. G.; Lopez-Puertas, M.; and Remsberg, E. E.: Impact of Non-LTE Processes on Middle Atmospheric Water Vapor Retrievals From Simulated Measurements of 6.8 μm Earth Limb Emission. *Geophysical Research Letters*, Volume 29, No. 9, May 1, 2002, p. 2-1 - 2-4.
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- 706** Mertens, C. J.; Mlynczak, M. G.; Lopez-Puertas, M.; Remsberg, E. E.; Gordley, L. L.; and Russell, J. M., III: Retrieval of Middle Atmospheric Water Vapor From Measurements of 6.8 μm Earth Limb Emissions Under Non-LTE Conditions. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC.
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- 707** Mertens, C. J.; Mlynczak, M. G.; Lopez-Puertas, M.; Wintersteiner, P. P.; Picard, R. H.; Winick, J. R.; Gordley, L. L.; and Russell, J. M., III: Simultaneous Retrieval of Kinetic Temperature and CO₂ Volume Mixing Ratio in the Mesosphere and Lower Thermosphere From Measurements of 15 μ m and 4.3 μ m Earth Limb Emission Under Non-LTE Conditions. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC.
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- 708** Mertens, C. J.; Mlynczak, M. G.; Lopez-Puertas, M.; Wintersteiner, P. P.; Picard, R. H.; Winick, J. R.; Gordley, L. L.; and Russell, J. M., III: Simultaneous Retrieval of Temperature and CO₂ Abundance in the Mesosphere and Lower Thermosphere From SABER Observations of Infrared Limb Emission. Presented at American Geophysical Union 2002 Fall Meeting, December 6-10, 2002, San Francisco, California.
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- 709** Mills, F. P.; Cageao, R. P.; Nemtchinov, V.; Sander, S. P.; Chu, B.; Jiang, Y.; Allen, M.; Karpilovsky, E.; Yung, Y. L.; Russell, J. M., III; and Remsberg, E. E.: OH Column Abundance Over JPL's Table Facility 1997-2001: Analysis and Interpretation. Presented at 12th Conference on the Middle Atmosphere, November 4-8, 2002, San Antonio, Texas.
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- 710** Mlynczak, M. G.; Martin-Torres, J.; Lopez-Puertas, M.; Picard, R. H.; Winick, J. R.; Wintersteiner, P. P.; Russell, J. M., III; and Gordley, L. L.: A First Look at the Energy Budget of the Mesosphere and Lower Thermosphere as Revealed by the SABER Experiment on the TIMED Mission. Presented at 2002 Western Pacific Geophysics Meeting, July 9-12, 2002, Wellington, New Zealand.
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- 711** Natarajan, M.; Remsberg, E. E.; and Gordley, L. L.: Ozone Budget in the Upper Stratosphere: Model Studies Using the Reprocessed LIMS and the HALOE Datasets. *Geophysical Research Letters*, Volume 29, No. 7, April 1, 2002, p. 56-1 - 56-4.
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- 712** Park, J. H.: CO₂ Retrieval From ILAS II Data. Presented at ILAS (Improved Limb Atmospheric Spectrometer) Science Team Meeting, March 25-28, 2002, Tsukuba, Japan.
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- 713** Remsberg, E. E.; Bhatt, P. P.; and Deaver, L. E.: Seasonal and Longer-Term Variations in Middle Atmosphere Temperature From HALOE and UARS. *Journal of Geophysical Research*, Volume 107, No. D19, October 16, 2002.
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- 714** Remsberg, E. E.; and Deaver, L. E.: Middle Atmosphere Temperature Variations From HALOE on UARS. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC. In EOS Transactions.
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- 715** Remsberg, E. E.; Deaver, L. E.; Wells, J. G., Jr.; Lingenfelter, G. S.; Bhatt, P. P.; Gordley, L. L.; Thompson, R. E.; McHugh, M. J.; Russell, J. M., III; Keckhut, P.; and Schmidlin, F. J.: As Assessment of the Quality of HALOE Temperature Profiles in the Mesosphere Based on Comparisons With Rayleigh Backscatter Lidar and Inflatable Falling Sphere Measurements. *Journal of Geophysical Research*, Volume 107, No. D20, October 27, 2002.
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- 716** Remsberg, E. E.; Harvey, V. L.; Natarajan, M.; and Gordley, L. L.: The LIMS Version 6 Water Vapor Distributions. Presented at 12th Conference on the Middle Atmosphere, November 4-8, 2002, San Antonio, Texas.
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- 717** Remsberg, E. E.; Lingenfelter, G. S.; Picard, R. H.; Schmidlin, F. J.; Goldberg, R. A.; Pesnell, W. D.; She, C-Y.; Fritts, D. C.; Russell, J. M., III; Mlynczak, M. G.; Gordley, L. L.; Mertens, C. J.; Lopez-Puertas, M.; and Garcia-Comas, M.: Comparison of SABER Temperature Profiles With Rocket, Groundbased, and Satellite Measurements. Presented at American Geophysical Union 2002 Fall Meeting, December 6-10, 2002, San Francisco, California.
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- 718** Rinsland, C. P.; Jones, N. B.; Connor, B. J.; Wood, S. W.; Goldman, A.; Stephen, T. M.; Murcray, F. J.; Chiou, L. S.; Zander, R.; and Mahieu, E.: Multiyear Infrared Solar Spectroscopic Measurements of HCN, CO, C₂H₆, and C₂H₂ Tropospheric Columns Above Launder, New Zealand (45°S Latitude). *Journal of Geophysical Research*, Volume 107, No. D14, July 27, 2002, p. ACH 1-1 - 1-12.
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- 719** Thomason, L. W.: Remote Sensing of the Stratospheric Effects of Volcanic Eruptions by Satellites. Presented at Chapman Conference of Volcanism and the Earth's Atmosphere, June 17-21, 2002, Thera, Greece.
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- 720** Thomason, L. W.: SAGE II and SAGE III: Status and Current Activities. Presented at ILAS II Science Team Meeting, March 19-21, 2002, Osaka, Japan.
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Category 47 Meteorology and Climatology

- 721** Arduini, R. F.; Minnis, P.; and Young, D. F.: Investigation of a Visible Reflectance Parameterization for Determining Cloud Properties in Multi-Layered Clouds. Presented at 11th Conference on Cloud Physics, June 3-7, 2002, Ogden, Utah.
 Organization RE Program No. 229-01-02

- 722** Avery, M. A.; Barrick, J. D.; Ferrare, R. A.; Browell, E. V.; Ismail, S.; Diskin, G. S.; and Podolske, J. R.: Ozone and Water Vapor Variability in Vicinity of a Midlatitude Upper Tropospheric Front and Jet Maximum. Presented at AGU—2002 Spring Meeting, May 28-31, 2002, Washington, DC. In EOS Transactions, Abstract No. A51F-12.
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- 723** Ayers, J. K.; Heck, P. W.; Rapp, A. D.; Minnis, P.; Young, D. F.; Smith, W. L., Jr.; and Nguyen, L.: A One-Year Climatology of Cloud Properties Derived From GOES-8 Over the Southeastern Pacific for PACS. Presented at 11th Conference on Cloud Physics, June 3-7, 2002, Ogden, Utah. In Proceedings, Paper No. P2.10.
 Organization RE Program No. 622-96-00
- 724** Baum, B. A.; Frey, R. A.; Ackerman, S.; and Menzel, W. P.: Remote Sensing of Global Cloud Properties Using MODIS Data. Presented at IGARSS 2002—International Geoscience & Remote Sensing Symposium, June 24-28, 2002, Toronto, Canada.
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- 725** Browell, E. V.; Butler, C. F.; Fenn, M. A.; Grant, W. B.; Brackett, V. G.; Hair, J. W.; Avery, M. A.; Newell, R. E.; and Fuelberg, H. E.: Ozone and Aerosol Distribution Measured Over the Western Pacific With an Airborne Lidar During the TRACE-P Field Experiments. Presented at 21st International Laser Radar Conference, July 8-12, 2002, Quebec City, Canada.
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- 726** Browell, E. V.; Butler, C. F.; Fenn, M. A.; Grant, W. B.; Brackett, V. G.; Hair, J. W.; Avery, M. A.; Newell, R. E.; and Fuelberg, H. E.: Air Mass Characteristics Observed Over the Western Pacific During the TRACE-P Field Experiment. Presented at Joint CACGP/IGAC 2002 International Symposium, September 18-25, 2002, Crete, Greece.
 Organization RE Program No. 622-31-13
- 727** Browell, E. V.; Butler, C. F.; Fenn, M. A.; Grant, W. B.; Brackett, V. G.; Hair, J. W.; Avery, M. A.; Newell, R. E.; and Fuelberg, H. E.: Advanced Airborne Lidar Investigations of Ozone and Aerosols Over the Western Pacific. Presented at SPIE's 3rd International Asia-Pacific Symposium on Remote Sensing of the Atmosphere, Ocean, Environment, and Space. October 23-27, 2002, Hangzhou, China.
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- 728** Browell, E. V.; Butler, C. F.; Fenn, M. A.; Grant, W. B.; Brackett, V. G.; Hair, J. W.; Avery, M. A.; Newell, R. E.; Hu, Y.; Fuelberg, H. E.; and Jacob, D. J.: Large-Scale Ozone and Aerosol Distributions, Air Mass Characteristics, and Ozone Fluxes Observed Over Springtime Western Pacific Ocean During TRACE-P. Presented at American Geophysical Union 2002 Fall Meeting, December 6-10, 2002, San Francisco, California.
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- 729** Browell, E. V.; Fenn, M. A.; Butler, C. F.; Grant, W. B.; Ismail, S.; Ferrare, R. A.; Kooi, S. A.; Brackett, V. G.; Clayton, M. B.; Avery, M. A.; Barrick, J. D.; Fuelberg, H. E.; Maloney, J. C.; Newell, R. E., *et al.*: Large-Scale Air Mass Characteristics Observed Over the Remote Tropical Pacific Ocean During March–April 1999: Results From PEM-Tropics B Field Experiment. *Journal of Geophysical Research*, Volume 106, No. D23, December 16, 2001, p. 32,481-32,501.
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- 730** Browell, E. V.; Hair, J. W.; Butler, C. F.; Grant, W. B.; DeYoung, R. J.; Fenn, M. A.; Brackett, V. G.; Clayton, M. B.; Brasseur, L. H.; Harper, D. B.; Ridley, B. A.; Klonecki, A. A.; Hess, P. G.; Emmons, L. K.; *et al.*: Ozone, Aerosol, Potential Vorticity, and Trace Gas Trends Observed at High-Latitudes Over North America From February to May 2000. Presented at Joint CACGP/IGAC 2002 International Symposium, September 18-25, 2002, Crete, Greece.
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- 731** Browell, E. V.; Ismail, S.; and Grant, W. B.: DIAL. In *Encyclopedia of Atmospheric Sciences*, Volume 3, James R. Holton, John A. Pyle, Judith A. Curry, eds., Academic Press, December 2002, p. 1183-1193.
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- 732** Bush, K. A.; Smith, G. L.; Lee, R. B., III; and Young, D. F.: The Earth Radiation Budget Experiment (ERBE) 15-Year Data Set. Presented at SPIE's 9th International Symposium on Remote Sensing, September 23-27, 2002, Crete, Greece.
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- 733** Cess, R. D.; Zhang, M.; Wang, P-H.; and Wielicki, B. A.: Cloud Structure Anomalies Over the Tropical Pacific During the 1997/98 El Nino. *Geophysical Research Letters*, Volume 24, No. 24, December 15, 2001, p. 4547-4550.
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- 734** Chakrapani, V.; Doelling, D. R.; and Minnis, P.: Conversion of Narrowband Visible Radiances to Broadband Shortwave Radiances Using Coincident CERES and VIRS Data. Presented at 11th Conference on Atmospheric Radiation, June 3-7, 2002, Ogden, Utah. In Proceedings, Paper No. P2.9.
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- 735** Chakrapani, V.; Doelling, D. R.; Rapp, A. D.; and Minnis, P.: Cloud Thickness Estimation From GOES-8 Satellite Data Over the ARM-SGP Site. Presented at 12th ARM Science Team Meeting, April 8-12, 2002, St. Petersburg, Florida.
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- 736** Chambers, L. H.; Costulis, P. K.; Young, D. F.; Detweiler, P. T.; Sepulveda, R.; and Stoddard, D. B.: Continuing Evaluation of S'COOL, an Educational Outreach Project Focused on NASA's CERES Program. Presented at American Geophysical Union 2002 Fall Meeting, December 6-10, 2002, San Francisco, California.
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- 737** Chambers, L. H.; Lin, B.; Wielicki, B. A.; Hu, Y-X.; and Xu, K-M.: Reply to ‘Comment on ‘The Iris Hypothesis: A Negative or Positive Cloud Feedback’. *Journal of Climate*, Volume 15, No. 18, September 15, 2002, p. 2716-2717.
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- 738** Chambers, L. H.; Lin, B.; and Young, D. F.: New CERES Data Examined for Evidence of Tropical Iris Feedback. Presented at 11th Conference on Atmospheric Radiation, June 3-7, 2002, Ogden, Utah. In Proceedings, Paper No. 2.12.
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- 739** Chambers, L. H.; Lin, B.; and Young, D. F.: Examination of New CERES Data for Evidence of Tropical Iris Feedback. *Journal of Climate*, Volume 15, No. 24, December 15, 2002, p. 3719-3726.
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- 742** Cheng, A.; and Xu, K-M.: Simulations of Four Boundary-Layer Cloud Regimes With a Cloud-Resolving Model. Presented at GCSS-ARM Workshop on the Representation of Cloud Systems in Large-Scale Models, May 20-24, 2002, Alberta, Canada.
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