

CURRICULUM VITA

April, 2010

DOUGLAS D. DAVIS

• Address

Work: School of Earth and Atmospheric Sciences
Georgia Institute of Technology
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• Educational Background

B.S. in Chemistry, University of Washington, 1962
Ph.D., Physical Chemistry, University of Florida, 1966
Advisor: Professor Robert Hanrahan
Dissertation: The Gamma Radiolysis of Carbon Tetrachloride and Ammonia Solutions

• Employment History

<i>Georgia Institute of Technology</i> Professor Emeritus, School of Earth and Atmospheric Sciences	2004-Present
<i>Georgia Institute of Technology</i> Professor, School of Earth and Atmospheric Sciences	1978-2003
<i>Georgia Tech Engineering Experiment Station</i> Principal Research Scientist, Head Atmospheric Chemistry Branch	1976-1978
<i>University of Maryland</i> Associate Professor of Chemistry	1973-1976
Assistant Professor of Chemistry	1969-1973
<i>National Bureau of Standards</i> National Academy of Sciences, Research Fellow	1966-1969
<i>University of Florida</i> Teaching Assistant	1962-1964

- **Honors, Awards and Recognitions**

State of Maryland Outstanding Young Scientist Award, 1974

Certificate of Appreciation, National Research Council/National Academy of Science, 1984

Outstanding Ph.D. Dissertation Advisor Sigma Xi Award 1987

Outstanding Ph.D. Dissertation Advisor Sigma Xi Award 1998

Best Scientific Paper Award, Georgia Tech Chapter of Sigma Xi, 1999

NASA Group Achievement Award, Outstanding Performance PEM West A and B Field Studies, 1999

NASA Group Achievement Award, Outstanding Performance during SONEX Field Study, 1999

Advisor Award, Georgia Tech Student Paper Competition, Sci. Appl. Intl. Corp., 2001

American Geophysical Union Fellow, 2002

Georgia Tech Sigma Xi Award for Sustained Research, 2002

Awarded Professor Emeritus status, 2004

- **Current Fields of Research Interest**

Interests Global tropospheric chemistry, environmental atmospheric chemistry, tropospheric modeling and global ozone budgets, atmospheric sources of nitrogen, sulfur, and halogens, sulfur and halogens gas phase mechanistic studies, gas-to-particle conversion processes, Antarctic tropospheric chemistry studies, global biogeochemical cycles; development of laser induced fluorescence instrumentation and its applications.

- **Professional Service**

- **Professional Society Memberships**

American Chemical Society (ACS), American Geophysical Union (AGU), American Association for the Advancement of Science, and Sigma Xi Scientific Research Society

- **Major Scientific Conferences/Meetings Organized**

NSF GAMETAG (Global Atmospheric Measurements Experiment of Tropospheric Aerosol and Gases) field study planning session (1976)

NSF GAMETAG data review (1979)

NASA CITE-3 (Chemical Instrumentation Test Experiment-sulfur) planning session (1989)

International Conference on Global/Regional Environmental Chemistry (co-organizer Beijing, China (1989)

NASA CITE-3 data review (1990)

- **Major Scientific Conferences/Meetings Organized (*continued*)**

AGU Special Session- "Results from NASA's Cite-3 Mission" San Francisco, fall (1991)
NASA PEM-West A (Pacific Exploratory Mission- Western Pacific) field study planning session (1990)
NASA PEM-West A data review (1992)
NASA PEM-West B field study planning session (1993)
NASA PEM-West B data review (1994)
NASA PEM-Tropics A field study planning session (1995)
AGU Special Session on "Results from SCATE (Sulfur Chemistry in the Antarctic Troposphere Experiment) Field Study", Baltimore, spring (1996)
NASA PEM-Tropics A data review (1996)
NASA PEM-Tropics B field planning session (1997)
NSF ISCAT-1 (Investigation of Sulfur Chemistry in the Antarctic Troposphere) field study planning session (1997)
NASA PEM-Tropics B data review (1999)
NSF ISCAT-1 data review (1999)
AGU Special Session, "Polar Chemistry and Dynamics", San Francisco, fall (1999)
AGU Special Session, "Results from NASA's PEM-Tropics B Study", Washington D.C., spring (2000)
NSF ISCAT-2 data review (2001)
NSF ANTCI (Antarctic Tropospheric Chemistry Investigation) field planning (2001)

NSF ANTCI final planning of 2003 and 2005 field studies (April, 2002)

• **Participation in Major Atmospheric Chemistry Field Studies**

NSF sponsored GAMETAG (Global Atmospheric Measurements Experiment of Tropospheric Aerosol and Gases) - mission scientist, project director (1977 and 1978)
NASA sponsored CITE-1A (Chemical Instrumentation Test Experiment)- PI, ground based measurements of NO and OH (1983)
NASA sponsored CITE-1B, PI, airborne measurements of NO (1984)
NASA sponsored CITE- 2, PI, airborne measurements of NO and NO₂ (1986)
NASA sponsored CITE- 3, mission scientist (1990)
NASA sponsored PEM-West A (Pacific Exploratory Mission- Western Pacific) – mission scientist (1991)
NASA sponsored PEM-West B - co-mission scientist (1994)
NSF sponsored SCATE (Sulfur Chemistry in the Antarctic Troposphere Experiment) - science advisor (1994)
NSF sponsored ACE-1 (Aerosol Characterization Experiment) - science advisor (1995)
NASA sponsored PEM-Tropics- A, co-mission scientist (1996)
NSF sponsored ISCAT-1 (Investigation of Sulfur Chemistry in the Antarctic Troposphere, project director (1998)
NASA sponsored PEM-Tropics- B, co-mission scientist (1999)

NSF sponsored ISCAT-2, co-mission scientist and project director (2000)
NASA sponsored TRACE-P airborne study, co-investigator
NSF sponsored ANTCI-1 (Antarctic Tropospheric Chemistry Investigation), mission scientist, 2003
NSF sponsored ANTCI-2, mission scientist, 2005

- **Scientific Pannels/Advisory Boards**

Department of Transportation's Climatic Assessment Program- Natural Stratosphere Committee (1973-1975)
NASA workshops on "Long Range Chemical Impact of Space Shuttle" (1974-1976)
National Academy of Sciences Advisory Panel on "Tropospheric Transport of Pollutants to the Ocean (1975-1976)
NASA planning committee on "Future Needs in Tropospheric Chemistry" (1978-1979)
NSF SEAREX(Sea-Air Exchange Experiment)Scientific Advisory Committee(1980-1984)
NASA Steering Committee on "Global Tropospheric Chemistry" (1981-1985)
National Academy of Sciences panel on "Global Tropospheric Chemistry" (1981-1984)
NSF Office of Polar Programs Review Panel on "Antarctic Ozone Research" (1988)
USA/China Committee on "Joint Research on Atmospheric Chemistry" (1989-1991)
NASA Long Range Tropospheric Planning Committee (1984-1995)
NSF External Review Panel of NCAR "Atmospheric Chemistry Division" (1997)
NASA Review Panel for "Atmospheric Sciences Division" (1997)
NASA Tropospheric Chemistry planning committee (1998-2001)

- **Scientific Journals - Reviewer**

Journal of Physical Chemistry, International Journal of Chemical Kinetics, Journal of Chemical Physics, Journal of American Chemical Society, Journal of Chemical Education, Applied Optics, Optics Letters, Review of Scientific Instruments, Science, Environmental Science and Technology, Atmospheric Environment, Journal Atmospheric Chemistry, Journal of Geophysical Research, Geophysical Research Letters

- **Agency Proposals - Reviewer**

National Science Foundation (Atmospheric Sciences), National Science Foundation (Office of Polar Programs), National Aeronautics and Space Administration (Tropospheric Chemistry Program), National Aeronautics and Space Administration (Stratospheric Chemistry Program), Environmental Protection Agency, Naval Research Office, Department of Energy, Electric Power Research Institute, Petroleum Research Fund, National Oceanographic Atmospheric Agency (Global Change Program)

• **Scientific Publications** (*Total # of Citations >5000*)
[# citations]

190) Abundances and Variability of Tropospheric Volatile Organic Compounds at the South Pole and other Antarctic Locations, Andreas Beyersdorf, Douglas Davis et al., submitted to *Atm. Envir.*, 2010.

189) Oppenheimer, C., D. Davis et al., Plume chemistry and atmospheric impact of emissions from Erebus volcano, Antarctica, *J. Geophys. Res.*, 115, D04303, doi:10.1029/2009JD011910, 2010.

188) South Pole Antarctica Observations and Modeling Results: New Insights on HO_x Radical and Sulfur Chemistry, R.L. Mauldin III, E. Kosciuch, F. Eisele, G. Huey, D. Tanner, S. Sjostedt, D. Blake, G. Chen, J. Crawford and D. Davis, doi:10.1016/j.atmosenv.2009.07.058, 2009.

187) Atmospheric chemistry results from the ANTICI 2005 Antarctic plateau airborne study, D. L. Slusher, D. D. Davis, et al., doi:10.1029/2009JD012605, 2009.

186) A reassessment of Antarctic plateau reactive nitrogen based on ANTICI 2003 airborne and ground based measurements Douglas D. Davis et al., doi:10.1016/j.atmosenv.2007.07.039, 2007.

185) Assessing the photochemical impact of snow NO_x emissions over Antarctica during ANTICI 2003, Yuhang Wang, Yunsoo Choi, Tao Zeng, Douglas Davis, Martin Buhr, L. Gregory Huey and William Neff, doi:10.1016/j.atmosenv.2007.07.062, 2007.

184) Concentrations and sources of aerosol ions and trace elements during ANTICI-2003, R. Arimoto, T. Zeng, D. Davis, Y. Wang, H. Khaing, C. Nesbit and G. Huey, doi:10.1016/j.atmosenv.2007.05.054, 2007.

183) Antarctic Tropospheric Chemistry Investigation (ANTICI) 2003 overview, F. Eisele, D. Davis

et al., doi:10.1016/j.atmosenv.2007.04.013, 2007.

182) Nitric oxide in the boundary-layer at South Pole during the Antarctic Tropospheric Chemistry Investigation (ANTCI), Detlev Helmig, Bryan J. Johnson, Matt Warshawsky, Thomas Morse, William D. Neff, Fred Eisele and Douglas D. Davis, doi:10.1016/j.atmosenv.2007.03.061, 2007.

181) A study of boundary layer behavior associated with high NO concentrations at the South Pole using a minisodar, tethered balloon, and sonic anemometer, W. Neff, D. Helmig, A. Grachev and D. Davis, doi:10.1016/j.atmosenv.2007.01.033, 2007.

180) Elevated ozone in the boundary layer at South Pole, Detlev Helmig, Bryan Johnson, Samuel J. Oltmans, William Neff, Fred Eisele and Douglas D. Davis, doi:10.1016/j.atmosenv.2006.12.032, 2006.

179) Lead and mercury in aerosol particles collected over the South Pole during ISCAT-2000, R. Arimoto, C. Schloesslin, D. Davis, A. Hogan, P. Grube, W. Fitzgerald, C. Lamborg, *Atmospheric Environment*, 38, 5485, 2004.

178) Major ions and radionuclides in aerosol particles from the South Pole during ISCAT-2000, R. Arimoto, A. Hogan, P. Grube, D. Davis, J. Webb, C. Schloesslin, S. Sage, F. Raccach, *Atmospheric Environment*, 38, 5473, 2004.

177) Organic trace gases of oceanic origin observed at South Pole during ISCAT 2000, Aaron L. Swanson, Douglas D. Davis, Richard Arimoto, Pauline Roberts, Elliot L. Atlas, Frank Flocke, Simone Meinardi, F. Sherwood Rowland, Donald R. Blake, *Atmospheric Environment*, 38, 5463, 2004.

176) A reassessment of HO_x South Pole chemistry based on observations recorded during ISCAT 2000 G. Chen, D. Davis, J. Crawford, L.M. Hutterli, L.G. Huey, D. Slusher, L. Mauldin, F. Eisele, D. Tanner, J. Dibb, M. Buhr, J. McConnell, B. Lefer, R. Shetter, D. Blake, C.H. Song, K. Lombardi, J. Arnoldy, *Atmospheric Environment*, 38, 5451, 2004.

175) Formaldehyde and hydrogen peroxide in air, snow and interstitial air at South Pole

Manuel A. Hutterli, Joseph R. McConnell, Gao Chen, Roger C. Bales, Douglas D. Davis, Donald H. Lenschow, Atmospheric Environment, 38, 5439, 2004.

174) Measurements of OH, HO₂+RO₂, H₂SO₄, and MSA at the South Pole during ISCAT 2000 R.L. Mauldin III, E. Kosciuch, B. Henry, F.L. Eisele, R. Shetter, B. Lefer, G. Chen, D. Davis, G. Huey, D. Tanner, Atmospheric Environment, 38, 5423, 2004.

173) CIMS measurements of HNO₃ and SO₂ at the South Pole during ISCAT 2000, L.G. Huey, D.J. Tanner, D.L. Slusher, J.E. Dibb, R. Arimoto, G. Chen, D. Davis, M.P. Buhr, J.B. Nowak, R.L. Mauldin III, F.L. Eisele, E. Kosciuch, Atmospheric Environment, 38, 5411, 2004.

172) Observations of summertime NO fluxes and boundary-layer height at the South Pole during ISCAT 2000 using scalar similarity, S.P. Onclay, M. Buhr, D.H. Lenschow, D. Davis, S.R. Semmer, Atmospheric Environment, 38, 5389, 2004.

171) South Pole NO_x Chemistry: an assessment of factors controlling variability and absolute levels, D. Davis, G. Chen, M. Buhr, J. Crawford, D. Lenschow, B. Lefer, R. Shetter, F. Eisele, L. Mauldin, A. Hogan, Atmospheric Environment, 38, 5375, 2004.

170) An overview of ISCAT 2000, D.D. Davis, F. Eisele, G. Chen, J. Crawford, G. Huey, D. Tanner, D. Slusher, L. Mauldin, S. Onclay, D. Lenschow, S. Semmer, R. Shetter, B. Lefer, R. Arimoto, A. Hogan, P. Grube, M. Lazzara, A. Bandy, D. Thornton, H. Berresheim, H. Bingemer, M. Hutterli, J. McConnell, R. Bales, J. Dibb, M. Buhr, J. Park, P. McMurry, Atmospheric Environment, 38, 5363, 2004

169) An assessment of western North Pacific ozone photochemistry based on springtime observations from NASA's PEM-West B (1994) and TRACE-P (2001) field studies, D. D. Davis, G. Chen, J. H. Crawford, S. Liu, D. Tan, S. T. Sandholm, P. Jing, D. M. Cunnold, B. DiNunno, E. V. Browell, W. B. Grant, M. A. Fenn, B. E. Anderson, J. D. Barrick, G. W. Sachse, S. A. Vay, C. H. Hudgins, M. A. Avery, B. Lefer, R. E. Shetter, B. G. Heikes, D. R. Blake, N. Blake, Y. Kondo, and S. Oltmans, J. Geophys. Res., 108, 8829, 2003.

168) Clouds and trace gas distributions during TRACE-P, J. Crawford,¹ J. Olson,¹ D. Davis,² G. Chen, J. Barrick, R. Shetter, B. Lefer, C. Jordan, B. Anderson, A. Clarke, G. Sachse, D. Blake, H. Singh, S. Sandolm, D. Tan, Y. Kondo, M. Avery, F. Flocke, F. Eisele, L. Mauldin, M. Zondlo, W. Brune, H. Harder, M. Martinez, R. Talbot, A. Bandy, and D. Thornton, , J. Geophys. Res., 108, 8818, 2003.

- 167) **Chemical Evolution and dispersion of ship plumes in the remote marine boundary layer: investigation of sulfur chemistry**, Chul H. Song, Gao Chen, Douglas D. Davis, *Atmospheric Environment*, 37, 2663, 2003.
- 166) **Central/eastern North Pacific photochemical precursor distributions for fall/spring seasons as defined by airborne field studies**, B. DiNunno, D. Davis, G. Chen, G. Gregory, G. Sachse, B. Anderson, S. Vay, M. Avery, B. Ridley, M. Carroll, J. Walega, D. Montzka, F. Grahek, J. Bradshaw, S. Sandholm, Y. Kondo, G. Kok, D. Blake, N. Blake, J. Barrick, H. Fuelberg, B. Martin, and A. Balok, *J. Geophys. Res.*, 108, 8240, 2003.
- 165) **An Assessment of Ozone Photochemistry in the Central/Eastern North Pacific as Determined from Multi-Year Airborne Field Studies**, B. DiNunno, G. Chen, J. Crawford, J. Olson, S. Liu, and D. Davis, *J. Geophys. Res.*, 108, 8237, 2003.
- 164) **Springtime Photochemistry at Northern Mid and High Latitudes**, Y. Wang, B. Ridley, A. Fried, C. Cantrell, D. Davis, G. Chen, J. Snow, B. Heikes, R. Talbot, J. Dibb, F. Flocke, N. Blake, D. Blake, R. Shetter, M. Coffey, and E. Atlas, *J. Geophys. Res.*, 108, 8358, 2003.
- 163) **Dispersion and Chemical Evolution of Ship Plumes in the Marine Boundary Layer: Investigation of O₃/NO_y/HO_x Chemistry**, C. Song, G. Chen, S. Hanna, J. Crawford, and D. Davis, *J. Geophys. Res.*, 108, 4143, 2003.
- 162) **Chemical Fate and Dispersion of Sulfur Emitted from Ocean-Going Ships in the Remote Marine Boundary Layer**, C. Song, G. Chen, D. Davis, *Atmos. Environ.*, 37, 2663, 2003.
- 161) **Measurements of Pernitric Acid at the South Pole during ISCAT 2000**, D. Slusher, G. Huey, D. Davis, G. Chen, M. Buhr, J. Nowak, F. Eisele, L. Mauldin, B. Lefer, R. Shetter, J. Dibb, *Geophys. Res. Lett.*, 29, 2002.
- 160) **Chemical Ionization Mass Spectrometry Technique for the detection of Dimethylsulfoxide and Ammonia**, Nowak, J., L. Huey, F. Eisele, D. Tanner, R. Mauldin, C. Cantrell, E. Kosciuch, and D. Davis, *J. Geophys. Res.*, 107, 4363, 2002.
- 159) **Handbook on Weather, Climate, and Water, chapter on Atmospheric Sulfur**, Davis, D., G. Chen, and M. Chin, John Wiley & Sons, J. Fishman Associate Editor, Jan 2003..
- 158) **Handbook on Weather, Climate, and Water, chapter on Nitrogen Oxides and Reactive Nitrogen**, J. Crawford, D. Davis, S. Liu, and J. Bradshaw, John Wiley & Sons, J. Fishman Associate Editor, Jan 2003..
- 157) **Marine Latitude/Altitude OH Distributions: Comparison of Pacific Ocean Observations with Models**, Davis, D., G. Grodzinsky, G. Chen, J. Crawford, F. Eisele, L. Mauldin, D. Tanner, C. Cantrell, W. Brune, D. Tan, I. Faloon, B. Ridley, D. Montzka, J. Walega, F. Grahek, S. Sandholm,

G. Sachse, S. Vay, B. Anderson, M. Avery, B. Heikes, J. Snow, D. O'Sullivan, R. Shetter, B. Lefer, D. Blake, M. Carroll, and Y. Wang, *J. Geophys. Res.*, **106**, 32691, 2001.

156) Factors controlling tropospheric O₃, OH, NO_x, and SO₂ over the tropical Pacific during PEM-Tropics B, Wang, Y., S. Liu, D. Davis, P. Wine, S. Sandholm, E. Atlas, M. Avery, D. Blake, N. Blake, W. Brune, B. Heikes, G. Sachse, R. Shetter, H. Singh, R. Talbot, and D. Tan, *J. Geophys. Res.*, **106**, 32733, 2001.

155) Relationship between OH measurements on two different NASA aircraft during PEM-Tropics B, Eisele, F., R. Mauldin, D. Tanner, C. Cantrell, E. Kosciuch, B. Brune, D. Tan, G. Chen and D. Davis, *J. Geophys. Res.*, **106**, 32683, 2001.

154) Pacific Exploratory Mission in the Tropical Pacific: PEM-Tropics B, March-April 1999, Raper, J., M. Kleb, D. Davis, D. Jacob, R. Newell, H. Fuelberg, R. Bendura, J. Hoell, and R. McNeal, *J. Geophys. Res.*, **106**, 32401, 2001.

153) Measurements of OH aboard the NASA P-3 during PEM-Tropics B, Mauldin, R. L., F. Eisele, D. Tanner, C. Cantrell, E. Kosciuch, J. Nowak, G. Chen, L. Wang, D. Davis, B. Ridley, and B. Lefer, *J. Geophys. Res.*, **106**, 32657, 2001.

152) Seasonal Differences in the Photochemistry of the South Pacific: A Comparison of Observations and Model Results From PEM-Tropics A and B, Olson, J. R., J. Crawford, D. Davis, G. Chen, M. Avery, J. Barrick, G. Sachse, S. Vay, S. Sandholm, D. Tan, B. Brune, I. Faloon, B. Heikes, R. Shetter, B. Lefer, H. Singh, R. Talbot, and D. Blake, *J. Geophys. Res.*, **106**, 32749, 2001.

151) Formaldehyde over the central Pacific during PEM-Tropics, Heikes, B. D., J. Snow, P. Egli, D. O'Sullivan, J. Crawford, J. Olson, G. Chen, D. Davis, N. Blake, and D. Blake, *J. Geophys. Res.*, **106**, 32717, 2001.

150) Measurements of Enhanced H₂SO₄ and 3-4 nm Particles Near a Frontal Cloud during ACE-1, Weber, R., D. Davis, G. Chen, R. Mauldin, D. Tanner, F. Eisele, A. Clarke, D. Thornton, and A. Bandy, *J. Geophys. Res.*, **106**, p 24107- 24117, 2001.

149) Unexpected High Levels of NO Measured at South Pole, Davis, D., J. B. Nowak, G. Chen, M. Buhr, R. Arimoto, A. Hogan, F. Eisele, L. Mauldin, D. Tanner, R. Shetter, B. Lefer, and P. McMurry, *Geophys. Res. Lett.*, **28**, p 3625-3628, 2001.

148) An Investigation of South Pole HO_x Chemistry: Comparison of Model Results with ISCAT Observations, Chen, G., D. Davis, J. Crawford, J. B. Nowak, F. Eisele, R. L. Mauldin III, D. Tanner, M. Buhr, R. Shetter, B. Lefer, R. Arimoto, A. Hogan, and D. Blake, *Geophys. Res. Lett.*, **28**, p 3633-3636, 2001.

147) Evidence for Photochemical Production of Ozone at the South Pole Surface, Crawford, J., D. D. Davis, G. Chen, M. Buhr, S. Oltmans, R. Weller, R. Mauldin, F. Eisele, R. Shetter, B. Lefer, R.

Arimoto and A. Hogan, *Geophys. Res. Lett.*, **28**, p 3641-3644, 2001.

146) Measurements of OH, H₂SO₄, and MSA at the South Pole During ISCAT, Mauldin, R. L., F. L. Eisele, D. J. Tanner, E. Kosciuch, R. Shetter, B. Lefer, S. R. Hall, J. B. Nowak, M. Buhr, G. Chen, P. Wang, and D. Davis, *Geophys. Res. Lett.*, **28**, p 3629-3632, 2001.

145) Non-sea Salt Sulfate and Other Aerosol Constituents at the South Pole during ISCAT, Arimoto, R., A. S. Nottingham, J. Webb, C. A. Schloesslin and D. Davis, *Geophys. Res. Lett.*, **28**, p 3641-3644, 2001.

144) Airborne Observations of DMSO, DMS, and OH at Marine Tropical Latitudes, Nowak, J., D. Davis, G. Chen, F. Eisele, D. Tanner, L. Mauldin III, C. Cantrell E. Kosciuch, A. Bandy, D. Thornton, and A. Clarke, *Geophys. Res. Lett.*, p 2201-204, 2001.

143) Impact of Ship Emissions on Marine Boundary Layer NO_x and SO₂ Distributions over the Pacific Basin, Davis, D., G. Grodzinsky, P. Kasibhatla, J. Crawford, G. Chen, S. Liu, A. Bandy, D. Thornton, H. Guan, and S. Sandholm, *Geophys. Res. Lett.*, **28**, p 235-238, 2001.

142) An Assessment of HO_x Chemistry in the Tropical Pacific Boundary Layer: Comparison of Observations With Model Simulations During PEM Tropics A, Chen, G., D. Davis, J. Crawford, B. Heikes, D. O'Sullivan, F. Eisele, L. Mauldin, D. Tanner, J. Collins, J. Barrick, B. Anderson, D. Blake, J. Bradshaw, S. Sandholm, M. Carroll, G. Albercook, and A. Clarke, *J. Atmos. Chem.*, **38**, p 317-344, 2001.

141) Evaluation of the DMS Flux and its Conversion to SO₂ Over the Southern Ocean, Shon, Z., D. Davis, G. Chen, G. Grodzinsky, A. Bandy, D. Thornton, S. Sandholm, J. Bradshaw, R. Stickel, W. Chameides, G. Kok, L. Mauldin, D. Tanner, and F. Eisele, *J. Atmos. Envir.*, **35**, p 159-172, 2001.

140) Evolution and Chemical Consequences of Lightning Produced NO_x Observed in the North Atlantic Upper Troposphere, Crawford, J., D. Davis, J. Olson, G. Chen, S. Liu, H. Fuelberg, J. Hannan, Y. Kondo, B. Anderson, G. Gregory, G. Sachse, R. Talbot, A. Viggano, B. Heikes, J. Snow, H. Singh, and D. Blake, *J. Geophys. Res.*, **105**, p 19795-19809, 2000.

139) A Study of DMS Oxidation in the Tropics: Comparison of Christmas Island Field Observations of SO₂ and DMS with Model Simulations, Chen, G., D.D. Davis, P. Kasibhatla, A.R. Bandy, D.C. Thornton, B.J. Huebert⁴, and A.D. Clarke, *J. Atmos Chem.*, **37**, 137-160, 2000.

138) Observed Distributions of Nitrogen Oxides in the Remote Free Troposphere from NASA GTE Programs, Bradshaw, J., D. Davis, G. Grodzinsky, S. Smyth, R. Newell, and S. Liu, *Review of Geophysics*, **38**, 61-116, 2000. [8]

- 137) Sources of Reactive Nitrogen in the Upper Troposphere During SONEX, Liu, S. C., H. Yu, Y. Wang, D. Davis, Y. Kondo, M. Koike, B. Anderson, S. Vay, G. Sachse, G. Gregory, H. Fuelberg, A. Thompson, and H. Singh, *Geophys. Res. Lett.*, 26, 2441-2444, 1999. [4]
- 136) Assessment of Upper Tropospheric HO_x Sources Over the Tropical Pacific Based on NASA GTE/PEM Data: Net Effect on HO_x and Other Photochemical Parameters, Crawford, J., D. Davis, J. Olson, G. Chen, S. Liu, G. Gregory, J. Barrick, G. Sachse, S. Sandholm, B. Heikes, H. Singh, and D. Blake, *J. Geophys. Res.*, 104, 16255-16273, 1999. [12]
- 135) An Assessment of Cloud Effects on Photolysis Rate Coefficients: Comparison of Experimental and Theoretical Values, Crawford, J., D. Davis, G. Chen, R. Shetter, M. Müller, J. Barrick, J. Olson, *J. Geophys. Res.*, 104, 5725-5734, 1999. [4]
- 134) DMS oxidation in the equatorial Pacific: Comparison of model simulations with field observations for DMS, SO₂, H₂SO₄(g), MSA(g), MS, and NSS, Davis, D., G. Chen, F. Eisele, B. Huebert, L. Mauldin, A. Bandy, D. Thornton, and D. Lenschow, *J. Geophys. Res.*, 104, 5765-5784 1999. [14]
- 133) The Pacific Exploratory Mission in the Tropical Pacific: PEM-Tropics A, August-September, 1996, Hoell, J., D. Davis, D. Jacobs, M. Rodgers, R. Newell, H. Fuelberg, R. McNeal, and R. Bendura, *J. Geophys. Res.*, 104, 5567-5583, 1999. [20]
- 132) OH and HO₂ chemistry in the North Atlantic free troposphere, Brune, W., D. Tan, I. Faloon, L. Jaegle, D. Jacob, B. Heikes, J. Snow, Y. Kondo, R. Shetter, B. Anderson, S. Vay, H. Singh, R. Poeschel, D. Davis, and D. Blake, *Geophys. Res. Lett.*, 26, 3077-3080, 1999. [10]
- 131) A mass-balance/photochemical assessment of DMS sea-to-air Flux as Inferred From NASA GTE PEM-West A and B Observations, Chen, G., D. Davis, P. Kasibhatla, A. Bandy, D. Thornton, and D. Blake, *J. Geophys. Res.*, 104, 5471-5482, 1999. [1]
- 130) Photofragmentation Two-photon Laser-Induced Fluorescence Detection of NO₂ and NO: Comparison of Measurements with Model Results Based on Airborne Observations during PEM-Tropics A, Bradshaw J., D. Davis, J. Crawford, G. Chen, S. Sandholm, R. Shetter, G. Gregory, G. Sachse, and B. Heikes, *Geophys. Res. Lett.*, 26, 471-474, 1999. [15]
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- 8) Reaction of C1(²P_{3/2}): Absolute Rate Constants for Reaction with H₂, CH₄, C₂H₆, CH₂Cl₂, C₂Cl₄ and C-C₆H₁₂, Davis, D. D., W. Braun and A. M. Bass, *Int. J. Chem. Kin.*, II, p. 101, 1970.

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7) An Experimental Test of a Two-Layer Model Characterizing Emission Line Profiles, Braun, W., D. D. Davis and A. M. Bass, J. Opt. Soc., 60, p. 166, 1970. [31]

6) A Review of Two New Techniques for Determining Absolute Reaction Rates for Atomic Species, Davis, D. D., W. Braun and A. M. Bass, Chem. Eng. News, 47, No. 1, p. 37, 1969. [0]

5) Flash Photolysis of Carbon Suboxide Absolute Rate Constants for Reaction of C(³P) and C(¹D) with H₂, N₂, CO, NO, O₂ and CH₄, Braun, W., A. M. Bass, D. D. Davis and J. Simmons, Proc. Roy. Soc., A312, p. 417, 1969. [138]

4) Kinetic Spectroscopic Studies of C1(²P_{3/2}) in the Vacuum Ultraviolet, Donovan, R. D., D. Husain, D. D. Davis, A. N. Bass and W. Braun, J. Chem. Phys., 50, p. 4115, 1969. [27]

3) Determination of Bond Dissociation Energies in Hydrogen Cyanide, Cyanogen and Cyanogen Halides by the Photodissociation Method, Davis, D. D., and H. Okabe, J. Chem. Phys., 49, p. 5526, 1968. [112]

2) Intense Vacuum Ultraviolet Atomic Line Sources, Davis, D. D., and W. Braun, Appl. Optics, 7, p. 2071, 1968. [126]

1) The Radiation Induced Ammonolysis of Carbon Tetrachloride, Davis, D. D., and R. J. Hanrahan, J. Am. Chem. Soc., 37, p. 3088, 1965. [5]

Chapters in Books (published/in press)

Handbook on Weather, Climate, and Water, chapter on "Atmospheric Sulfur", Davis, D., G. Chen, and M. Chin, John Wiley & Sons, J. Fishman Associate Editor, Jan 2003.

Handbook on Weather, Climate, and Water, chapter on "Nitrogen Oxides and Reactive Nitrogen", J. Crawford, D. Davis, S. Liu, and J. Bradshaw, John Wiley & Sons, J. Fishman Associate Editor, Jan 2003.

Chemical Composition and Climate of the Atmosphere, chapter on "Sulfur in the Atmosphere," Berresheim, H., P. H. Wine, D. D. Davis, H. B. Singh, Editor, Van Nostrand Reinhold Publishing Co., 251-307, 1995.

Precipitation Scavenging, Dry Deposition, and Resuspension, Pruppacher et al. Editors;

Elsevier Science Publishing Co., Inc. New York, Chapter on "The Coupled Gas-Phase/Aqueous Phase Free Radical Chemistry of a Cloud," Chameides, W., and D.D. Davis, 431-443, 1983.

Climatic Impact Assessment Program Monograph I, chapter on "The Natural Stratosphere," Department of Transportation, 1975.

- **Educational Activity**

- **Teaching - University of Maryland (1969-1976) - Chemistry Department**

Quarter System

General Chemistry (undergraduate)	6 quarters, 180/qt
Physical Chemistry (undergraduate)	3 quarters, 30/qt
Physical Chemistry Lab (undergraduate)	5 quarters, 30/qt
Environmental Chemistry (grad/undergrad)	4 quarters, 25/qt
Photochemistry and Kinetics (graduate)	2 quarters, 10/qt

- **Teaching - Georgia Institute of Technology (1978-2002)- EAS**

Quarter System

GEOS 6820 Introduction Atmospheric Chemistry(graduate)	8 quarters, 7/qt
GEOS 6821 Atmospheric Chemistry (graduate)	8 quarters, 7/qt
GEOS Photokinetics and Spectroscopy (graduate)	2 quarters, 5/qt
EAS 1000 Introduction to Earth Science (undergraduate)	1 quarter, 23/qt
EAS 6820 Atmospheric Chemistry I (graduate)	9 quarters, 10/qt
EAS 6821 Atmospheric Chemistry II (graduate)	9 quarters, 10/qt
EAS 6941 Atmospheric Modeling (graduate)	7 quarters, 5/qt

Semester System

EAS 6401 Atmospheric Chemistry I (graduate)	4 semesters, 10/s
EAS 6410 Atmospheric Chemistry II (graduate)	3 semesters, 10/s

• Graduate Students Supervised - University Maryland(1969-1976) - *Chemistry Department*

Robert Huie, Ph.D., Chemistry, 1972

Dissertation: A Flash Photolysis - Resonance Fluorescence Study of the Reactions of Ground State Atomic Oxygen with Several C₂-C₆ Olefins, Molecular Oxygen, and Nitrogen Dioxide

Present Position: Head, Expt Kinetics & Thermodynamics Group National Institute of Standards and Technology

Bruce Klemm, Ph.D., Chemistry, 1972

Dissertation: A Flash Photolysis - Resonance Fluorescence Kinetics Study of Ground State Sulfur Atoms

Postdoc: Goddard Space Flight Center

Present Position: Senior Res. Scientist, Brookhaven National Laboratory

Chung-Wah Wilson Wong, M.S., Chemistry, 1973

Dissertation: A Flash Photolysis - Resonance Fluorescence Study of Atmospheric Reactions Involving H and O Atoms

Present Position and/or Location: Hong Kong

Walter Payne, M.S., Chemistry, 1974

Dissertation: A Kinetics Study of Atmospheric Reactions Involving the Hydroperoxyl Radical

Present Position: Senior Research Scientist, NASA Goddard Space Flight Center

Gary Klauber, Ph.D., Electrical Engineering, 1976

Dissertation: Airborne Field Study of Power Plant Plumes: NO_x and SO₂ Chemistry

Present Position and/or Location: Unknown

William Keifer II, Ph.D., Chemistry, 1977

Dissertation: The Generation of Ozone in Plumes from Large Point Sources

Present Position: Senior Scientist at Meteorological Research Incorporated (MRI)

Glen Jon Smith, M.S., Chemistry, 1979

Dissertation: A Flash Photolysis - Resonance Fluorescence Kinetics Study of Several Reactions of Possible Importance to Stratospheric Chlorine Chemistry

Present Position and/or Location: Unknown

• **Graduate Students Supervised - Georgia Institute of Technology (1978-2002) - EAS**

Frank Routhier, M.S., Geophysical Sciences, 1980

Dissertation: Latitudinal and Vertical Relationships between Tropospheric Ozone and Water Vapor as Measured during Project GAMETAG

Present Position: Chief, Atmospheric Sciences, U.S.A.F Weather Station, Omaha .

Michael Rodgers, Ph.D. Geophysical Sciences; 1986

Dissertation: Development and Application of a Photofragmentation Laser Induced Fluorescence Detection System for Atmospheric Nitrous Acid

Present Position: Principal Research Scientist, School of Civil Engineering, Georgia Institute of Technology

Kevin S. Dorris, M.S., Geophysical Sciences, 1988 (co-Thesis Advisor with Dr. John Bradshaw)

Dissertation: A possible New Source of Nitrogen Oxides: Atmospheric Electrical

Corona

Present Position: Manager with Tennessee Valley Authority

Li Wen, M.S., Geophysical Sciences, 1988

Present Position and/or Location: China

Mian Chin, Ph.D., Earth and Atmospheric Sciences, 1992

Dissertation: An Atmospheric Study of Carbonyl Sulfide and Carbon Disulfide and Their Relationship to Stratospheric Background Aerosol

Postdoc: Harvard University

*Present Position: Senior Research Scientist, Georgia Institute of Technology and
Goddard
Space Flight Center (joint appointment)*

Vernon Morris, Ph.D., Earth and Atmospheric Sciences, 1992

Dissertation: An Investigation of Transient Atmospheric Inorganic Peroxides: A Theoretical and Experimental Study

Postdoc: UCLA

Present Position: Associate Professor, Howard University, Washington D.C.

Darlene Slusher, M.S., Earth and Atmospheric Sciences, 1994

Present Position: Georgia Institute of Technology, graduate student, EAS

Gao Chen, Ph.D., Earth and Atmospheric Sciences, 1995

Dissertation: A Study of Tropospheric Photochemistry in the Sub-tropical/Tropical

North and South Atlantic

Present Position: Senior Research Scientist, EAS, Georgia Institute of Technology

Matt Collura, M.S., Earth and Atmospheric Sciences, 1996

Present Position: Assistant Vice President, Bank of America, Atlanta, Georgia

Jim Crawford, Ph.D., Earth and Atmospheric Sciences, 1997

Dissertation: An Analysis of the Photochemical Environment Over the Western North Pacific Based on Airborne Field Observations

Present Position: Senior Research Scientist, Atmospheric Sciences Division, NASA Langley Research Center

Blake Burgess, M.S., Earth and Atmospheric Sciences, 1997

Present Position: Database Administrator, Advance PCS, Arizona

Zhang-Ho Shon, Ph.D. Earth and Atmospheric Sciences, 1999

Dissertation: Photochemical Assessment of Oceanic Emissions of DMS and Its Oxidation to SO₂ Based on Airborne Field Observations

Present Position: Assistant Professor, Dong-Eui University, Pusan, South Korea

John Balthasar Nowak, Ph.D., Earth and Atmospheric Sciences, 2001 (co-Thesis Advisor, Fred Eisele)

Dissertation: An Airborne Field Study of Dimethyl Sulfoxide at Tropical Latitudes and Its Relationship to the Marine Sulfur Budget

Present Position: Research Scientist, NOAA, Aeronomy Lab

Brian DiNunno, Ph.D., Earth and Atmospheric Sciences, 2003

Dissertation: An Assessment of Tropospheric Photochemistry over the Central/Eastern North Pacific

Xingyi Gong, Ph. D., Earth and Atmospheric Sciences, 2005

Dissertation: A Comparison of NHMC Oxidation Mechanisms Using Specified Gas Mixtures and TRACE-P Field Data.

• Post Doctoral Associates - University of Maryland

Joseph Prusaeyzk, 1973-1974

Present Position: unknown

Peter Kim, 1974-1975

Present Position: unknown

John Lephardt, 1973-1974,

Present Position: Winston Tobacco Co., now retired

Andrew Moriarty, 1973-1975

Present Position: unknown

Dr. Pat Hogan, 1973-1975

Present Position: unknown

Thomas McGee, 1974-1975

Present Position: Senior Research Scientist, NASA Goddard Space Flight Center

William Heaps, 1974-1975

Present Position: Senior Research Science, NASA Goddard Space Flight Center

Robert Watson, 1975-1976

Present Position: Chief Environmental Office, World Bank

A. Ravishankara, 1975-1976

Present Position: Senior Research Scientist, NOAA Aeronomy Laboratory, Boulder

• Post Doctoral Associates - Georgia Institute of Technology

Paul Wine, 1976-1977

Present Position: Professor, Georgia Institute of Technology, Schools of Earth & Atmospheric Sciences and Chemistry & Biochemistry

Kazuhiro Asai, 1979-1981

Present Position: Prof., Tohoku Institute of Technology, Japan

Anthony Hynes, 1983-1984

Present Position: Associate Professor, University of Miami

Scott Sandholm, 1983-1984

Present Position: Senior Research Scientist, Georgia Institute of Technology School of Earth & Atmospheric Sciences

Robert Stickel, 1984-1985

Present Position: Senior Research Scientist, Georgia Institute of Technology School of Earth & Atmospheric Sciences

Pierre Kohler, 1986-1987

Present Position: Senior Research Scientist, Ciba-Geigy, Switzerland

Yongchun Tang, 1986-1987

Present Position: Director of Cal. Tech Petroleum Energy & Environmental Research Center

John Schendel, 1987-1988

Present Position: Unknown

Gao Chen, 1995-1996

Present Position: Senior Research Scientist, NASA, Langley Research Center

Oliver Wingenter, 1997-1999

Present Position: Assist Professor, New Mexico Tech

Gil Grodzinsky, 1998-2000

Present Position: Announcer at Weather Channel

Lihua Wang, 2000- 2001

Present Position: Software Design Engineer, Agilent Technologies Inc., CA

Chul Han Song, 2000 - 2003

• Research Associates Supervised - Georgia Institute of Technology

A. Ravishankara, 1976-1978

Present Position: Senior Research Scientist, NOAA Aeronomy Laboratory, Boulder

Paul Wine, 1977-1978

Present Position: Professor, Georgia Institute of Technology, Schools of Earth & Atmospheric Sciences and Chemistry & Biochemistry

Dan Philen, 1976-1978

Present Position: Senior Research Scientist, AT&T Technologies

Frank Tully, 1976-1978

Present Position: Senior Scientist, Sandia Laboratories

Scott Sandholm, 1984-1988

**Present Position: Principal Research Scientist, Georgia Institute of Technology
School of Earth & Atmospheric Sciences**

Robert Stickel, 1985-1987

***Present Position: Senior Research Scientist, Georgia Institute of Technology
School of Earth & Atmospheric Sciences***

John Bradshaw, 1981-1988

Position: Professor, School of Earth & Atmospheric Sciences, now deceased

Mike Rodgers, 1979-1988

***Present Position: Principal Research Scientist, School of Civil Engineering, Georgia
Institute of Technology***

Gao Chen, 1996-2003

Present Position: Senior Research Scientist, NASA, Langley Research Center

Chul Han Song, 2002 - 2003

- **Committee Service at Georgia Institute of Technology**

- **Institute-Wide Committees**

**Chairman, Ad Hoc Committee for the Formation of Atmospheric Sciences Program at
Georgia Tech (1977)**

Dean's (COSALS) Advisory Committee on Tenure and Promotion (1981-1983)

**Chairman, Dean's (COSALS) Advisory Committee on Tenure and Promotion (1983-
1984)**

Vice-President for Research's Advisory Committee (1983-1986).

Vice-President for Research Committee for Research Faculty Promotion (1986)

**Environmental Science and Technology Advisory Council, Task Force on Education
and Research Programs (1989-1990)**

Space and Environmental Science Camp Committee (1990-1992).

Vice-President's Tenure and Promotion Committee (1990-1992).

Provost's Committee for Research Faculty Promotion (1997 - 1998).

- **School of Earth & Atmospheric Sciences Committees**

Committee member for the design of a Masters Degree in Atmospheric Sciences at Georgia Tech (1978)
Committee member for the design of a Ph. D. Program in Atmospheric Sciences at Georgia Tech (1979)
Chairman, Georgia Tech's Atmospheric Sciences Graduate Student Recruiting Committee (1980-1981)
Chairman, Georgia Tech's Atmospheric Sciences Division (1981-1982)
Chairman, Atmospheric Sciences Graduate Student Recruiting Committee (1982-1985)
Tenure and Promotion Committee School of Geophysical Sciences (1983-84)
Chairman, Tenure and Promotion Committee School of Geophysical Sciences (1984-1985)
Earth & Atm. Sciences Committee on "Undergraduate Curriculum Development" (1989- 1993).
Earth & Atm. Sciences Promotion and Tenure Committee (1989-1994)
Earth & Atm. Sciences Directors Advisory Committee (1990-1991)
Earth & Atm. Sciences Committee on "Graduate Studies" (1990-1996)
Earth & Atmospheric Sciences Ph.D. Examining Committee (1991-1992)
Chairman, of EAS Georgia Research Alliance (EAS) Committee (1993)
Chairman, Earth & Atm. Sciences Promotion & Tenure Committee (1993-1994)
Earth & Atm. Sciences Eminent Scholar Committee (1994-1995)
Earth & Atm. Sciences - Geochemistry Faculty Search Committee (1994-1995)
Chairman, Earth & Atm. Sciences - Re-appointment, Promotion, and Tenure Committee (1995-1996)
Earth & Atm. Sciences - Comprehensive Examination Committee (1995-1996)
Earth & Atm. Sciences - Re-appointment, Promotion, and Tenure Committee (1996-2001).
Earth & Atm. Sciences - Graduate Student Recruitment Committee (1996-1997).
Earth & Atm. Sciences - Faculty Recruitment Committee (1996-1997)
Chair, Earth & Atm. Sciences - Atmospheric Chemistry Faculty Recruitment Committee (1997-1999)
Earth & Atm. Sciences Committee on "Graduate Studies" (1998-1999)
Earth & Atm. Sciences Seminar Co-Chairman (1999-2000)
Earth & Atm. Sciences - Atmospheric Dynamics Faculty Recruitment Committee (1999- 2000).
Earth & Atm. Sciences Committee on "Undergraduate Studies" (2000-2002)
Chairman, Earth & Atm. Sciences - Re-appointment, Promotion, and Tenure Committee (2001-2002)
Earth & Atm. Sciences Chair Search Committee (2001-2002)
Earth & Atm. Sciences - Re-appointment, Promotion, and Tenure Committee (2002-

2003)