CURRICULUM VITAE

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Professional Experience

2001 to 2004	Director, Harvard University Center for the Environment
1998-2006; 2017 to present	Member, China Council for International Cooperation on Environment and Development
1996 to present	Gilbert Butler Professor of Environmental Studies, Harvard University
1995	Chairman, MEDEA, Task Force appointed by Vice-President Gore to advise on environmental aspects of U.S. Intelligence
1993 to present	Chair, Harvard-China Project on Energy, Economy and Environment
1993	Chairman, Committee to Establish Undergraduate Concentration in Environmental Science and Public Policy, Harvard University
1991 to 2001	Chairman, Harvard University Committee on Environment
1986 to 2000	Chairman, Department of Earth and Planetary Sciences, Harvard University
1977 to 2008	Director, Atmospheric and Environmental Research Inc., Cambridge, MA
1977	Co-founder and Chairman of the Board, Atmospheric and Environmental Research Inc., Cambridge, MA.
1975 to 1978	Director of the Center for Earth and Planetary Physics, Harvard University
1970 to 1986	Member of the Center for Earth and Planetary Physics, Harvard University
1970 to 1996	Abbott Lawrence Rotch Professor of Atmospheric Sciences in the Division of Applied Sciences, Harvard University, Cambridge, MA
1963 to 1970	Physicist (1967-1970), Associate Physicist (1965-1967), Assistant Physicist (1963-1965), Planetary Sciences Division, Kitt Peak National Observatory, Tucson, AZ
1962 to 1963	Post-doctoral appointment, Theoretical Chemistry Institute, University of Wisconsin, Madison, WI

Education

Queen's University, Belfast, Northern Ireland

1962 Ph.D. in Applied Mathematics

1960 B.A. in Applied Mathematics (with first class honors)

Awards

2008 Elected Honorary Fellow, Royal Irish Academy

1991 Honorary DSc., Queen's University of Belfast, N. Ireland.

1989 Research and Development Award, National Energy Resources Organization.

1989 George Ledlie Prize for the person at Harvard University who "since the last awarding of said prize, has by research, discovery, or otherwise made the most valuable contribution to science, or in any way for the benefit of mankind."

1987 Eire Society Gold Medal Award.

1978 NASA Public Service Medal.

1977 The American Association for the Advancement of Science "Newcomb Cleveland Prize." Awarded collectively to all the participants in the Viking mission.

1968 James B. Macelwane Award by the American Geophysical Union for "outstanding contributions in the field of planetary atmospheres."

Professional Society Memberships

American Academy of Arts and Sciences (Fellow and Councillor).

American Astronomical Society

American Geophysical Union (Fellow).

American Association for the Advancement of Science (Fellow).

International Academy of Astronautics (Fellow).

Membership on Committees

NASA

- Stratospheric Research Advisory Committee
- Space and Earth Science Advisory Committee
- Weather, Climate, and Oceans Advisory Subcommittee
- Advisory Council Subcommittee for New Directions

U.S. Congress

- Space Program Advisory Panel, Office of Technology Assessment

National Academy of Sciences

- Committee on Climate, Energy and National Security (current)
- Committee on Science, Engineering and Public Policy

- Panel on Global Tropospheric Chemistry
- Committee on the Atmospheric Effects of Nuclear Explosions
- Board on Atmospheric Sciences and Climate
- Space Science Board
- Committee for the International Geosphere/Biosphere Program

U.S. Government

- Environmental Task Force

Selected Relevant Books

McElroy, M.B. 2018. *Energy and Climate: Vision for the Future*. New York: Oxford University Press.

McElroy, M.B. 2011. *Energy: Perspectives, Problems and Prospects* (Chinese edition). Beijing: Science Press. In Chinese.

McElroy, M.B. 2009. *Energy: Perspectives, Problems and Prospects*. Oxford: Oxford University Press.

McElroy, M.B. 2002. *The Atmospheric Environment: Effects of Human Activity*. Princeton: Princeton University Press.

McElroy, M.B., C.P. Nielsen, and P. Lydon. *Energizing China: Reconciling Environmental Protection and Economic Growth.* Cambridge, MA: Harvard University Press and Harvard University Committee on Environment.

Selected Relevant Journal Articles and Book Chapters

2019

Haikun Wang, Xi Lu, Yu Deng, Yaoguang Sun, Chris P. Nielsen, Yifan Liu, Ge Zhu, Maoliang Bu, Jun Bi, and Michael B. McElroy. 2019. China's CO2 peak before 2030 implied from diverse characteristics and growth of cities. *Nature Sustainability*.

Xi Lu, Liang Cao, Haikun Wang, Wei Peng, Jia Xing, Shuxiao Wang, Siyi Cai, Bo Shen, Qing Yang, Chris P. Nielsen, and Michael B. McElroy. 2019. Gasification of coal and biomass as a net carbon-negative power source for environment-friendly electricity generation in China. *Proceedings of the National Academy of Sciences*.

Peter Sherman, Meng Gao, Shaojie Song, Patrick Ohiomoba, Alex Archibald, and Michael B. McElroy. 2019. The influence of dynamics and emissions changes on China's wintertime haze. *Journal of Applied Meteorology and Climatology*.

Xingning Han, Xinyu Chen, Michael B. McElroy, Shiwu Liao, Chris P. Nielsen, and Jinyu Wen. 2019. Modeling formulation and validation for accelerated simulation and flexibility assessment on large scale power systems under higher renewable penetrations. *Applied Energy*, 237, Pp. 145-154.

S.J. Song, M. Gao, W.Q. Xu, Y.L. Sun, D.R. Worsnop, J.T. Jayne, Y.Z. Zhang, L. Zhu, M. Li, Z. Zhou, C.L. Cheng, Y.B. Lv, Y. Wang, W. Peng, X.B. Xu, N. Lin, Y.X. Wang, S.X. Wang, J. W. Munger, D. Jacob, and M.B. McElroy. 2019. Possible heterogeneous hydroxymethanesulfonate (HMS) chemistry in northern China winter haze and implications for rapid sulfate formation. *Atmospheric Chemistry and Physics*, 19, Pp. 1357-1371.

Shi Chen, Xi Lu, Yufei Miao, Yu Deng, Chris P. Nielsen, Noah Elbot, Yuanchen Wang, Kathryn G. Logan, Michael B. McElroy, and Jiming Hao. 2019. The potential of photovoltaics to power the Belt and Road Initiative. *Joule*, 3, Pp. 1-18.

Meng Gao, Peter Sherman, Shaojie Song, Yueyue Yu, Zhiwei Wu, and Michael B. McElroy. 2019. Seasonal prediction of Indian wintertime aerosol pollution using the Ocean Memory Effect. *Science Advances*, 5, 7.

2018

Archana Dayalu, William Munger, Steven Wofsy, Yuxuan Wang, Thomas Nehrkorn, Yu Zhao, Michael McElroy, Chris Nielsen, and Kristina Luus. 2018. Assessing biotic contributions to CO2 fluxes in northern China using the Vegetation, Photosynthesis and Respiration Model (VPRM-CHINA) and observations from 2005 to 2009. *Biogeosciences*, 15, Pp. 6713-6729.

Xinyu Chen, Junling Huang, Qing Yang, Chris P. Nielsen, Dongbo Shi, and Michael B. McElroy. 2018. Changing carbon content of Chinese coal and implications for emissions of CO2. *Journal of Cleaner Production*, 194, Pp. 150-157.

Shaojie Song, Meng Gao, Weiqi Xu, Jingyuan Shao, Guoliang Shi, Shuxiao Wang, Yuxuan Wang, Yele Sun, and Michael McElroy. 2018. Fine particle pH for Beijing winter haze as inferred from different thermodynamic equilibrium models. *Atmospheric Chemistry and Physics*, 18, Pp. 7423-7438.

Meng Gao, Gufran Beig, Shaojie Song, Hongliang Zhang, Jianlin Hu, Qi Ying, Fengchao Liang, Yang Liu, Haikun Wang, Xiao Lu, Tong Zhu, Gregory Carmichael, Chris P. Nielsen, and Michael B. McElroy. 2018. The impact of power generation emissions on ambient $PM_{2.5}$ pollution and human health in China and India. *Environment International*, 121, Part 1, Pp. 250-259.

Xinyu Chen, Zhiwei Xu, Chris P Nielsen, and Michael B. McElroy. 2018. Impacts of fleet types and charging modes for electric vehicles on emissions under different penetrations of wind power. *Nature Energy*, 3, Pp. 413-421.

Michael B. McElroy, Xinyu Chen, and Yawen Deng. 2018. The missing money problem: incorporation of increased resources from wind in a representative US power market. *Renewable Energy*, 126, Pp. 126-136.

Xinyu Chen, Jiajun Lv, Michael B. McElroy, Xingning Han, Chris Nielsen, and Jinyu Wen. 2018. Power system capacity expansion under higher penetration of renewables considering flexibility constraints and low carbon policies. *IEEE Transactions on Power Systems*.

Meng Gao, Yihui Ding, Shaojie Song, Xiao Lu, Xinyu Chen, and Michael B. McElroy. 2018. Secular decrease of wind power potential in India associated with warming Indian Ocean. *Science Advances*, 4, 12, Pp. eaat5256.

Xinyu Chen, Michael B. McElroy, Qiuwei Wu, Yinbiao Shu, and Yusheng Xue. 2018. Transition towards higher penetration of renewables: an overview of interlinked technical, environmental and socio-economic challenges. *Journal of Modern Power Systems and Clean Energy*.

2017

Xi Lu and Michael B. McElroy. 2017. Global potential for wind generated electricity. In *Wind Energy Engineering: A Handbook for Onshore and Offshore Wind Turbines*, edited by Trevor M. Letcher. Amsterdam: Elsevier.

Xinyu Chen, Michael B. McElroy, and Chongqing Kang. 2017. Integrated energy systems for higher wind penetration in China: Formulation, implementation, and impacts. *IEEE Transactions on Power Systems*, 33, 2, Pp. 1309-1319.

Haikun Wang, Yanxu Zhang, Xi Lu, Weimo Zhu, Chris P. Nielsen, Jun Bi, and Michael B. McElroy. 2017. Trade-driven relocation of air pollution and health impacts in China. *Nature Communications*, 8, 738.

Michael B. McElroy and Xinyu Chen. 2017. Wind and solar power in the United States: Status and prospects. *CSEE Journal of Power and Energy Systems*, 3, 1.

Peter Sherman, Xinyu Chen, and Michael B. McElroy. 2017. Wind-generated electricity in China: Decreasing potential, inter-annual variability, and association with climate change. *Scientific Reports*, 7.

2016

Xi Lu, Michael B. McElroy, Wei Peng, Shiyang Liu, Chris P. Nielsen, and Haikun Wang. 2016. Challenges faced by China compared with the US in developing wind power. *Nature Energy*, 1, 6.

Michael B. McElroy. 2016. *Energy and Climate: Vision for the Future*. 1st ed. New York: Oxford University Press.

Meiyu Guo, Xi Lu, Chris P. Nielsen, Michael B. McElroy, Wenrui Shi, Yuntian Chen, and Xuan Yu. 2016. Prospects for shale gas production in China: Implications for water demand. *Renewable and Sustainable Energy Reviews*, 66, December, Pp. 742-750.

Ning Zhang, Xi Lu, Chris P Nielsen, Michael B. McElroy, Xinyu Chen, Yu Deng, and Chongqing Kang. 2016. Reducing curtailment of wind electricity in China by employing electric boilers for heat and pumped hydro for energy storage. *Applied Energy*, 184, Pp. 987-994.

2015

Junling Huang and Michael B. McElroy. 2015. A 32-year perspective on the origin of wind energy in a warming climate. *Renewable Energy*, 77, May, Pp. 482-492.

Junling Huang and Michael B. McElroy. 2015. Thermodynamic disequilibrium of the atmosphere in the context of global warming. *Climate Dynamics*, (March).

2014

Junling Huang and Michael B. McElroy. 2014. Contributions of the Hadley and Ferrel circulations to the energetics of the atmosphere over the past 32 years. *Journal of Climate*, 27, 7, Pp. 2656–2666.

Junling Huang, Xi Lu, and Michael B. McElroy. 2014. Meteorologically defined limits to reduction in the variability of outputs from a coupled wind farm system in the Central US. *Renewable Energy*, 62, February, Pp. 331–340.

Xi Lu, Michael B. McElroy, Xinyu Chen, and Chongqing Kang. 2014. Opportunity for offshore wind to reduce future demand for coal-fired power plants in China with consequent savings in emissions of CO2. *Environmental Science & Technology*, 48, 24, Pp. 14764–14771.

Long Wang, Shuxiao Wang, Lei Zheng, Yuxuan Wang, Yanxu Zheng, Chris P Nielsen, Michael B. McElroy, and Jiming Hao. 2014. Source apportionment of atmospheric mercury pollution in China using the GEOS-Chem model. *Environmental Pollution*, 190, July, Pp. 166-175.

Xinyu Chen, Xi Lu, Michael B. McElroy, Chris P Nielsen, and Chongqing Kang. 2014. Synergies of wind power and electrified space heating: A case study for Beijing. *Environmental Science & Technology*, 48, 3, Pp. 2016–2024.

2013

Xi Lu, Michael B. McElroy, Chris P Nielsen, Xinyu Chen, and Junling Huang. 2013. Optimal integration of offshore wind power for a steadier, environmentally friendlier, supply of electricity in China. *Energy Policy*, 62, Pp. 131–138.

2012

Huang, J.L., and M.B. McElroy. 2012. The contemporary and historical budget of atmospheric CO_2. *Canadian Journal of Physics* 90(8): 707-716, doi:10.1139/p2012-033.

Lu, X., M.B. McElroy, G. Wu, and C.P. Nielsen. 2012. Accelerated reduction of SO_2 emissions from the US power sector triggered by changing prices of natural gas. *Environmental Science and Technology* 46(14): 7882-7889, doi:10.1021/es301023c.

Lu, X., J. Salovaara, and M.B. McElroy. 2012. Implications of the recent reductions in natural gas prices for emissions of CO_2 from the US power sector. *Environmental Science and Technology* 46(5): 3014–3021, doi:10.1021/es203750k.

Wu, G., Y.M. Wei, C.P. Nielsen, X. Lu, and M.B. McElroy. 2012. A dynamic programming model of China's strategic petroleum reserve: General strategy and the effect of emergencies. *Energy Economics* 34(4): 1234-1243.

Wu, G., X. Lu, C.P. Nielsen, Y.M. Wei, and M.B. McElroy. Submitted (2012). Optimization of China's crude oil import strategy: An empirical analysis. *Energy Policy*.

Zhao, Y., C.P. Nielsen, and M.B. McElroy. 2012. China's CO_2 emissions estimated from the bottom up: Recent trends, spatial distributions, and quantification of uncertainties. *Atmospheric Environment* 59: 214-223.

Zhao, Y., C.P. Nielsen, M.B. McElroy, L. Zhang, and J. Zhang. 2012. CO emissions in China: Uncertainties and implications of improved energy efficiency and emission control. *Atmospheric Environment* 49: 103-113.

2011

Lin, J.T., and M.B. McElroy. 2011. Detection from space of a reduction in anthropogenic emissions of nitrogen oxides during the Chinese economic downturn. *Atmos. Chem. Phys*. 11: 8171-8188.

Lu, X., M.B. McElroy, and N. Sluzas. 2011. Costs for integrating wind into the future ERCOT system with related costs for savings in CO2 emissions. *Environ. Sci. Technol.* 45(7): 3160–3166.

Lu, X., J. Tchou, M.B. McElroy, and C.P. Nielsen. 2011. The impact of production tax credits on the profitable production of electricity from wind in the U.S. *Energy Policy* 39(7): 4207-4214.

Zhao, Y., C.P. Nielsen, Y. Lei, M.B. McElroy, and J.M. Hao. 2011. Quantifying the uncertainties of a bottom-up emission inventory of anthropogenic atmospheric pollutants in China. *Atmos. Chem. Phys.* 11: 2295-2308.

Zhao, Y., M.B. McElroy, J. Xing, L. Duan, C.P. Nielsen, Y. Lei, and J.M. Hao. 2011. Multiple effects and uncertainties of emission control policies in China: Public health, soil acidification, and global temperature. *Science of the Total Environment* 409(24): 5177-5187.

2010

Lin, J.-T., M.B. McElroy, and K.F. Boersma. 2010a. Constraint of anthropogenic NOx emissions in China from different sectors: A new methodology using separate satellite retrievals. *Atmos. Chem. Phys.* 10(1): 63-78.

Lin, J.-T., and M.B. McElroy. 2010b. Impacts of boundary layer mixing on pollutant vertical profiles in the lower troposphere: Implications to satellite remote sensing. *Atmos. Environ*. 44(14):1726-1739.

Lin, J.-T., C.P. Nielsen, Y. Zhao, Y. Lei, Y. Liu, and M.B. McElroy. 2010c. Recent changes in particulate air pollution over China observed from space and ground: Effectiveness of emission control. *Environ. Sci. Technol.* 44(20): 7771–7776.

McElroy, M.B. 2010. Challenge of global climate change: Prospects for a new energy paradigm. *Frontiers of Environmental Science & Engineering in China*, doi:10.1007/s11783-010-0005-8.

Wang, Y.X., M.B. McElroy, J.W. Munger, J.M. Hao, H. Ma, and C.P. Nielsen. 2010a. Year-round measurements of O3 and CO at a rural site near Beijing: Variations in their correlations. *Tellus B* 62(4): 228-241

Wang, Y.X., J. W. Munger, S.C. Xu, M.B. McElroy, J.M. Hao, C.P. Nielsen, and H. Ma. 2010b. CO2 and its correlation with CO at a rural site near Beijing: Implications for combustion efficiency in China. *Atmos. Chem. Phys.* 10: 8881-8897.

2009

Chen, D., Y.X. Wang, M.B. McElroy, K.B. He, R.M. Yantosca, and P. Le Sager. 2009. Regional CO pollution in China simulated by the high-resolution nested-grid GEOS-Chem model. *Atmos. Chem. Phys.* 9(11): 3825-3839.

Lu, X., M.B. McElroy, and J. Kiviluoma. 2009. Global potential for wind generated electricity. *P. Natl. Acad. Sci. USA* 106(27): 10933-10938s.

McElroy, M.B., X. Lu, C.P. Nielsen, and Y.X. Wang. 2009. Potential for wind generated electricity in China. *Science* 325(5946): 1378-1380. (This is the cover article of this issue of *Science*.)

Wang, Y.X., J.M. Hao, M.B. McElroy, J.W. Munger, H. Ma, D. Chen, and C.P. Nielsen. 2009. Ozone air quality during the 2008 Beijing Olympics: Effectiveness of emission restrictions. *Atmos. Chem. Phys.* 9(14): 5237-5251.

2008

McElroy, M.B., Saving Money, Oil, and the Climate: Using Non-Fossil Energy Sources to Power Our Vehicles. *Harvard Magazine*, March-April, Volume 110, Number 4.

Wang, J.S., M.B. McElroy, J.A. Logan, P.I. Palmer, W.L. Chameides, Y. Wang, and I.A. Megretskaia. 2008. A Quantitative Assessment of Uncertainties Affecting Estimates of Global Mean OH Derived from Methyl Chloroform Observations. *J. Geophys. Res*. 113, D12302, doi:10.1029/2007JD08496

Wang, Y.X., M.B. McElroy, J.W. Munger, J.M. Hao, H. Ma, C.P. Nielsen, and Y.S. Chen. 2008. Variations of O_3 and CO in summertime at a rural site near Beijing. *Atmos. Chem. Phys.* 8(21): 6355-6363.

2007

Wang, Y.X., M.B. McElroy, R.V. Martin, D.G. Streets, Q. Zhang, and T.-M. Fu. 2007. Seasonal variability of NO_X emissions over east China constrained by satellite observations: Implications for combustion and microbial sources. *J. Geophys. Res.* 112, D06301.

Wang, Y.X., M.B. McElroy, K.F. Boersma, H.J. Eskes, and J.P. Veefkind. 2007. Traffic restrictions associated with the Sino-African Summit: Reductions of NO_X detected from space. *Geophys. Res. Lett.* 34, L08814.

2005

McElroy, M.B., and Y.X. Wang. 2005. Human and animal wastes: Implications for atmospheric N_2O and NO_X. *Global Biogeochem. Cy. 19, GB2008.*

2004

Wang, J.S., J.A. Logan, M.B. McElroy, B.N. Duncan, I.A. Megretskaia, and R.M. Yantosca, 2004. A 3-D model analysis of the slowdown and interannual variability in the methane growth rate from 1988 to 1997, *Global Biogeochem. Cycles*, 18, GB3011, doi:10.1029/2003GB002180.

Wang, Y.X., M.B. McElroy, D.J. Jacob, and R.M. Yantosca. 2004. A nested grid formulation for chemical transport over Asia: Applications to CO. *J. Geophys. Res.* 109, D22307.

Wang, Y.X., M.B. McElroy, T. Wang, and P.I. Palmer. 2004. Asian emissions of CO and NO_X: Constraints from aircraft and Chinese station data. *J. Geophys. Res.* 109, D24304.

2003

Suntharalingam, P., C.M. Spivakovsky, J.A. Logan and M.B. McElroy. 2003. Estimating the distribution of terrestrial CO_2 sources and sinks from atmospheric measurements: Sensitivity to configuration of the observation network. *J. Geophys. Res.*, 108 (D15), 4452, doi:10.1029/2002JD002207.

2002

Wang, James S., M.B. McElroy, C.M. Spivakovsky, and D. B.A. Jones. 2002. On the contribution of anthropogenic Cl to the increase in δ13/C of atmospheric methane. *Global Biogeochemical Cycles* 16(47), doi:10.1029/2001GB001572.

1998

McElroy, M.B. 1998. Industrial growth, air pollution and environmental damage: Complex challenges for China. Chapter 6 in *Energizing China: Reconciling Environmental Protection and Economic Growth*, edited by M.B. McElroy, C.P. Nielsen, and P. Lydon. Cambridge, MA: Harvard University Press and Harvard University Committee on Environment.

Nielsen, C.P. and M.B. McElroy. 1998. Introduction and overview. Chapter 1 in *Energizing China: Reconciling Environmental Protection and Economic Growth*, edited by M.B. McElroy, C.P. Nielsen, and P. Lydon. Cambridge, MA: Harvard University Press and Harvard University Committee on Environment.

1997

McElroy, M.B. and C.P. Nielsen. 1997. Energy, agriculture, and the environment: Prospects for Sino-American cooperation. Chapter 9 in *Living with China: U.S.-China Relations in the Twenty-first Century*, edited by Ezra Vogel. New York: W. W. Norton.

Norton, F. L., III, E. Hausman, and M. B. McElroy. 1997. Hydrospheric Transports, the Oxygen Isotope Record, and Tropical Sea Surface Temperatures During the Last Glacial Maximum. Paleoceanography, 12, 15-22.

1996

McElroy, M. B., and D. B. A. Jones. 1996. Evidence for an Additional Source of Atmospheric N2O. Global Biogeochemical Cycles, 10, 651-659.

1995

McElroy, M. B. 1995. Changes in Climates of the Past: Lessons for the Future, In Planet Earth: Problems and Prospects, J. H. Spencer, editor. McGill, Queens University Press.

1994

McElroy, M. B. 1994. Climate of the Earth: An Overview, Environmental Pollution, 83, 3-21.

Wofsy, S. C., K. A. Boering, B. C. Daube, Jr., M. B. McElroy, M. Loewenstein, J. R. Podolske, J. W. Elkins, G. S. Dutton, and D. W. Fahey. 1994. Vertical transport rates in the stratosphere in 1993 from observations of CO2, N2O and CH4, Geophys. Res. Lett., 21, 2571-2574.

1993

Minschwaner, K., R.J. Salawitch, and M.B. McElroy. 1993. Absorption of Solar Radiation by O2: Implications for O3 and Lifetimes of N2O, CFCl3, and CF2Cl2, J. Geophys. Res., 98, 10,543-10,561.

1992

McElroy, M. B., R. J. Salawitch and K. Minschwaner, The Changing Stratosphere. Planet. Space Sci., 40, 373-401.

Marino, B. D., M. B. McElroy and R. J. Salawitch, Glacial-to-Interglacial Variations in D13 C for Atmospheric CO sub 2. Nature, 357, 461-466.

Minschwaner, K. and M. B. McElroy, A Model for the Energy Budget of the Earth: Comparisons with Data from the Earth Radiation Budget Experiment. Planet. Space Sci., 40, 1237-1250.

Minschwaner, K. and M. B. McElroy, Radiative Constraints on the Energy Budget of the Tropical Atmosphere. Planetary Space Sci., 40, 1585-1597.

Minschwaner, K., R. J. Salawitch and M. B. McElroy, Production of O3 in the Upper Stratosphere and Mesosphere. To be submitted, J. Geophys. Res.

1991

Marino, B. D. and M. B. McElroy, The Isotopic Composition of Carbon in C4 Plant Cellulose: A Proxy for the Isotopic Composition of Carbon in Atmospheric CO2. Nature, 349.

1990

Wofsy, S.C., G.P. Gobbi, R.J. Salawitch and M.B. McElroy. Nucleation of Nitric Acid Trihydrate Particles in the Polar Stratosphere. J. Atmos. Science, 47, 2004-2012.

Salawitch, R. J., J. H. Yatteau, S. C. Wofsy, and M. B. McElroy. Mechanism for denitrification of the polar stratosphere. Geophys. Res. Lett., 17, 449-452.

Wofsy, S. C., J. H. Yatteau, R. J. Salawitch, M.B. McElroy, G. C. Toon, W.B. Mankin, and M. T. Coffey. Heterogeneous conversion of COF2 to HF in polar stratospheric clouds. Geophys. Res. Lett., 17, 461-464.

Yatteau, J. H., S. C. Wofsy, R. J. Salawitch, M. B. McElroy, M. R. Schoeberl, L. R. Lait, P. A. Newman, A. Torres, T. Jorgensen, W. G. Mankin, M. T. Coffey, G. C. Toon, M. Loewenstein, J. R. Podolske, S. E. Strahan, K. R. Chan and M. H. Proffit, Effects of atmospheric transport on column abundances of nitrogen and chlorine compounds in the Arctic stratosphere. Geophys. Res. Lett., 17, 533-536.

Salawitch, R.J., M. B. McElroy, J. H. Yatteau, S. C. Wofsy, M. R. Schoeberl, L. R. Lait, P. A. Newman, K. R. Chan, M. Loewenstein, J. R. Podolske, S. E. Strahan and M. H. Proffit. Loss of Ozone in the Vortex for the Winter of 1989. Geophys. Res. Lett., 17, 561-564.

McElroy, M.B. Life on Earth: Lessons from the Past , Challenges for the Future. In Proceedings of the Third International Conference on Environmental Future, N. Polunin and Sir J. H. Burnett, editors. Edinburgh University Press, Edinburgh.

Spivakovsky, C. M., R. Yevich, J. A. Logan, S. C. Wofsy, and M. B. McElroy, Tropospheric OH in a Three-Dimensional Chemical Tracer Model: An Assessment Based on observations of CH3 CCl3, J. Geophys. Res., 95, 18,441-18,471.

1989

McElroy, M. B. The Challenge of Global Change. Bulletin of The American Academy of Sciences, Vol. XLII, February, pp.25-38.

McElroy, M.B., and R. J. Salawitch. Changing Composition of the Global Stratosphere. Science, 243, 763-770.

Salawitch, R. J., G.P. Gobbi, S. C. Wofsy and M.B. McElroy. Denitrification in the Antarctic Stratosphere. Nature, 339, 525-527.

McElroy, M.B., and R.J. Salawitch. Stratospheric Ozone: Impact of Human Activity. Planetary Space Sci., 37, 1653-1672.

McElroy, M.B., Studies of Polar Ice: Insights for Atmospheric Chemistry. In Report of the Dahlem Workshop on The Environmental Record in Glaciers and Ice Sheets, p. 363, H. Oeschger and C. C. Langway, Jr., editors. John Wiley and Sons.

Hecht, A. D., et al., Group Report: Long-term Core Records and Global Environmental Changes. In Report of the Dahlem Workshop on The Environmental Record in Glaciers and Ice Sheets, p. 379, H. Oeschger and C. C. Langway, Jr., editors. John Wiley and Sons.

1988

McElroy, M. B. Antarctic Ozone: A New Challenge. In Recent Studies in Atomic and Molecular Processes. Edited by Arthur E. Kingston Plenum Publishing Company, London.

McElroy, M.B., R.J. Salawitch, and S.C. Wofsy. Chemistry of the Antarctic Stratosphere. Planet. Space Sci., 36, 73-87.

Hao, W.M., S.C. Wofsy, M.B. McElroy, W.F. Farmayan, M.A. Toqan, J.M. Beer, M.S. Zahniser, J.A. Silver, C.E. Kolb. Nitrous oxide emission from coal, oil and gas furnace. Combust. Sci. and Tech., 55, 23-32.

Wofsy, S.C., M.J. Molina, R.J. Salawitch, L.E. Fox, and M.B. McElroy. Interactions between HCl, NOX, and H2O Ice in the Antarctic Stratosphere: Implications for Ozone. J. Geophys. Res., 93, 2442-2450.

Salawitch, R.J., S.C. Wofsy, M.B. McElroy. Chemistry of OClO in the Antarctic Stratosphere: Implications for Bromine. Planet. Space Sci., 36, 213-224.

Salawitch, R. J., S.C. Wofsy, and M.B. McElroy. Influence of Polar Stratospheric Clouds on the Depletion of Antarctic Ozone. Geophys. Res. Lett., 15, 871-874.

McElroy, M.B. The Challenge of Global Change. New Scientist, 34-36.

1987

Hao, W.M., S.C. Wofsy, M.B. McElroy, J.M. Beer and M.A. Toqan. Sources of Atmospheric Nitrous Oxide from Combustion. J. Geophys. Res., 92, 3098-3104.

Jacob, D.J., M.J. Prather, S.C. Wofsy, and M.B. McElroy. Atmospheric Distribution of 85Kr Simulated with a General Circulation Model. J. Geophys. Res., 92, 6614-6626.

Prather, M.J., M.B. McElroy, S.C. Wofsy, G. Russell, and D. Rind. Chemistry of the Global Troposphere: Fluorocarbons as Tracers of Air Motion. J. Geophys. Res., 92, 6579-6613.

1986

Wofsy, S.C. and McElroy, M.B. Tropical forests: interactions with the atmosphere. Symposium Volume: Tropical Forest and World Atmosphere, edited by Ghillean Prance, pgs. 33-60.

McElroy, M.B., R.S. Salawitch, S.C. Wofsy and J.A, Logan. Antarctic Ozone: Reductions due to synergistic interactions of chlorine and bromine. Nature, Vol. 321, 759-762.

Hao, W.M., S.C. Wofsy, M.B. McElroy, W.F. Farmayan, M.A. Toqan, J.M. Beer, M.S. Zahniser, J.A. Silver and C.E. Kolb. Nitrous oxide emission from coal, oil and gas furnace flames. Combustion Science and Tech., Vol. 55, 23-32.

McElroy, M.B. and A. Dalgarno. Photodissociation of O2 (a 1 D g) in the a 1 D g --> C3 Du Transition. Geophys. Res. Lett., 13, 660-663.

Ko, M.K.W., M.B. McElroy, D.K. Weisenstein and N.D. Sze. Lightning: a possible source of stratospheric odd nitrogen. J. Geophys. Res., 91, 5395-5404.

McElroy, M.B., R.S. Salawitch and S.C. Wofsy. Antarctic O3: An Assessment of Mechanisms for the Spring Decrease. Geophys. Res. Lett., 13, 1296-1299.

1985

Ennever-Knox, F. and McElroy, M.B. Changes in Atmospheric CO2: factors regulating the glacial to interglacial transition. Geophysical Monograph Vol. 32, reprinted from, "The Carbon Cycle and Atmospheric CO2: Natural Variations Archean to Present (AGU): 154-162.

1984

Bolin, B. and McElroy, M.B. A Geosphere-Biosphere Research Program International Council of Scientific Unions Symposium on Global Change.

Ko, M.K.W., Sze, N.D., Livshits, M. and McElroy, M.B. The seasonal and latitudinal behavior of trace gases and O3 as simulated by a two-dimensional model of the atmosphere. J. Atmos. Sci., Vol. 41, p. 2381.

Knox, F. and McElroy, M.B. Changes in Atmospheric CO2: influence of the marine biota at high latitude. J. Geophys. Res., Vol. 89, pp. 4629-4637.

Prather, M.J., Wofsy, S.C. and McElroy, M.B. Reductions in ozone at high concentrations of stratospheric halogens. Nature, Vol. 312, pp. 227-231.

Rodriguez, J.M., Prather, M.J. and McElroy, M.B. "Hydrogen on Venus": Exospheric Distribution and Escape. Planet. and Space Sci., Vol. 32, pp. 1235-1255.

Ber Bolin and Michael B. McElroy, A Geosphere-Biosphere Research Program, Global Change: The Proceedings of a Symposium sponsored by the International Coucil of Scientific Unions (ICSU) during its 20th General Assembly, in Ottawa, Canada on September 25, 1984, Edited by T.F. Malone and J.G. Roederer, Cambridge Unviersity Press, Cambridge, U.K.

1983

Hashimoto, L.K., Kaplan, W.A. and McElroy, M.B. Transformation of fixed nitrogen and N2O in the Cariaco Trench. Deep Sea Res., Vol. 30, pp. 575-590.

Keller, M., Wofsy, S.C., Goreau, T.J., Kaplan, W.A. and McElroy, M.B. Production of nitrous oxide and consumption of methane by forest soils. Geophys. Res. Lett., 10: 1156-1159.

McElroy, M.B. Marine biological controls on atmospheric CO2 and climate. Nature, Vol. 302, pp. 328-329.

McElroy, M.B. Atmospheric Composition: influence of biology. Planet. Space Sci., Vol. 31, pp. 1065-1074.

McElroy, M.B. Global atmospheric and climatic change. On the Fate of the Earth: Conservation and Security in a Sustainable Society, First Biennial Conference, New York, October 19-21, 1982, Earth Island Inst., San Francisco, pp. 312-322.

Prather, M.J. and McElroy, M.B. Helium on Venus: Implications for uranium and thorium. Science, Vol. 220, pp. 410-411.

Wofsy, S.C., Fox, L.E. and McElroy, M.B. Prediction of phytoplankton abundance in polluted rivers,

McElroy, M.B. Global Change: A Biogeochemical Perspective National Aeronautics and Space Administration

1982

Fox, J.L., Wofsy, S.C., McElroy, M.B., and Prather, M.J. A stratospheric chemical instability. J. Geophys. Res. Vol. 87, pp. 11,126-11,132.

McElroy, M.B., Prather, M.J., and Rodriguez, J.M. Escape of hydrogen from Venus. Science, Vol. 215, pp. 1614-1615.

McElroy, M.B., Prather M.J., and Rodriguez, J.M. Loss of oxygen from Venus. Geophys. Res. Lett. 9, pp. 649-651.

McElroy, M.B. Stratospheric chemistry: progress and problems Amer. Inst. Physics Conference Proceedings, Interpretation of Climate and Photochemical Models Ozone and Temperature Measurements, La Jolla Institute, 1981, pp. 173-181.

1981

Lipschultz, F., Zafiriou, O.C., Wofsy, S.C., McElroy, M.B., Valois, F.W. and Watson, S.W. Production of NO and N2O by soil nitrifying bacteria. Nature, Vol. 294, pp. 641-643.

Logan, J.A., Prather, M.J., Wofsy, S.C., and McElroy, M.B. Tropospheric chemistry: a global perspective. J. Geophs. Res. Vol. 86, 7210-7254.

McElroy, M.B. Sources and sinks for nitrous oxide. Proc. of NATO Algarve, Portugal, October 1-13, 1979; U.S. Dept. Transportation Report No. FAA-EE-80-20.

McElroy, M.B. Chemistry of the Stratosphere. Man and Stratospheric Ozone, Vols. I and II, F.A. Bower, ed., CRC Press, Inc.

McElroy, M.B. and Prather, M.J. Noble gases in the terrestrial planets: clues to evolution. Nature, Vol. 293, pp. 535-539.

Wofsy, S.C., McElroy, M.B., and Elkins, J.W. Transformations of nitrogen in a polluted estuary: nonlinearities in the demand for oxygen at low flow. Science, Vol. 213, pp. 754-757.

1980

Elkins, J.W., Wofsy, S.C., McElroy, M.B., and Kaplan, W.A. Nitrification and production of N2O in the Potomac: evidence for variability. Proc. of Symposium on Nutrient Enrichment.

Goody, R., McElroy , M.B., and Morrison, P. Human issues in space exploration. American Academy of Arts and Sciences Bull., Vol. 23, pp. 10-13.

Goreau, T.J., Kaplan, W.A., Wofsy, S.C., McElroy, M.B. Production of NO2- and N sub 2 O by nitrifying bacteria at reduced concentrations of oxygen. Applied and Environmental Microbiology, Vol. 40, pp. 526-532.

Hoffman, J.H., Hodges, R.R., Donahue, T.J., and McElroy, M.B. Composition of the Venus lower atmosphere from the Pioneer Venus mass spectrometer. J. Geophysical Research, Vol. 85, pp. 7882-7890.

McElroy, M.B., Wofsy, S.C., Sze, N. Dak Photochemical sources for atmospheric H sub 2 S. Atmospheric Environment, Vol. 14, pp. 159-163.

1979

Brace, L.H., Theis, R.F., Krehbiel, J.P., Nagy, A.F.,Donahue, T.M., McElroy, M.B. and Pedersen, A. Electron temperatures and densities in the Venus ionosphere: Pioneer Venus orbiter electron temperature probe results. Science, Vol. 203, pp. 763-765.

Hoffman, J.H., Hodges, R.R., McElroy, M.B., Donahue, T.M., and Kolpin, M. Venus lower atmospheric composition: preliminary results from Pioneer Venus. Science, Vol. 203, pp. 800-802.

Hoffman, M.H., Hodges, R.R., McElroy, M.B., Donahue, T.M., and Kolpin, M. Composition and structure of the Venus atmosphere: results from Pioneer Venus. Science, Vol. 205, pp. 49-52.

Logan, J.A., McElroy, M.B., Wofsy, S.C. and Prather, M.J. Oxidation of CS2 and COS: Sources for atmospheric SO2. Nature, Vol. 281, pp. 185-188.

McElroy, M.B. The continuing challenges of planetary exploration. Astronautics and Aeronautics, Vol. 17, No. 10, pp. 30-35.

Prather, M.J., McElroy, M.B., Wofsy, S.C. and Logan, J.A. Stratospheric chemistry: multiple solutions. Geophysical Research Letters, Vol. 6, p. 163.

Sandel, B.R., Shemansky, D.E., Broadfoot, A.L., Bertaux, J.L., Blamont, J.E., Belton, M.J.S., Ajello, J.M., Holberg, J.B., Atreya, S.K., Donahue, T.J., Moos, H.W., Strobel, D.F., McConnell, J.C., Dalgarno, A., Goody, R., McElroy, M.B. and Takacs, P.Z. Extreme ultraviolet observations from Voyager 2 encounter with Jupiter. Science, Vol. 206: 962-966.

Yung, Y.L. and McElroy, M.B. Fixation of nitrogen in the prebiotic atmosphere. Science, Vol. 203: 1002-1004.

1978

Elkins, J.W., McElroy, M.B., Kolb, C.E., Kaplan, W.A. Aquatic sources and sinks for nitrous oxide. Nature, Vol. 175, pp. 602-606.

Kaplan, W.A., Elkins, J.W., Kolb, C.E., McElroy, M.B., Wofsy, S.C. and Duran, A.P. Nitrous oxide in fresh water systems: an estimate for the yield of atmospheric N 2O associated with disposal of human waste. Pure and Applied Geophysics, Vol. 116, pp. 423-438.

Logan, J.A. , Prather, M.J., Wofsy, S.C. and McElroy, M.B. Atmospheric chemistry: response to human influence. Philosophical Transactions of the Royal Society, 290, pp. 187-234.

McElroy, M.B., Elkins, J.W., Wofsy, S.C., Kolb, C.E., Duran, A.P. and Kaplan, W.A. Production and release of N2O from the Potomac estuary. Limnology and Oceanography, Vol. 23, pp. 1168-1182.

Prather, M.J., Logan, J.A. and McElroy, M.B. Carbon monoxide in Jupiter's upper atmosphere: an extraplanetary source. The Astrophysical Journal, Vol. 223, pp. 1072-1081.

Prather, M.J., McElroy, M.B, and Rodriguez, J. Photoelectrons in the upper atmosphere: a formulation incorporating effects of transport. Planetary and Space Science, Vol. 26, pp. 131-138.

Smyth, W.H. and McElroy, M.B. Io's sodium cloud: comparison of models and two dimensional images. Astrophysical Journal. Vol. 226, pp. 336-346.

1977

Kong, T.Y. and McElroy, M.B. Photochemistry of the Martian atmosphere. Icarus, Vol. 32, pp. 168-189.

Kong, T.Y. and McElroy, M.B. The global distribution of O3 on Mars. Planetary and Space Science, Vol. 25, p. 839.

Logan, J.A. and McElroy, M.B. Distribution functions for energetic oxygen atoms in the earth's lower atmosphere. Planetary and Space Science, Vol. 25, p. 117.

McElroy, M.B., Kong, T.Y., and Yung, Y.L. Photochemistry and evolution of Mars' atmosphere: a Viking perspective. Journal of Geophysical Research, Vol. 82, No. 28, pp. 4379-4388.

McElroy, M.B., Wofsy, S.C. and Yung, Y.L. The nitrogen cycle: perturbations due to man and their impact on atmospheric N2O and O3. Philosophical Transactions of the Royal Society, B, 277, p. 159.

Nier, A.O. and McElroy, M.B. Composition and structure of Mars' upper atmosphere: Results from the neutral mass spectrometers on Vikings 1 and 2. Journal of Geophysical Research, Vol. 82, No. 28, p. 4341.

Penner, J.E., McElroy, M.B. and Wofsy, S.C. Sources and sinks for atmospheric H2: a current analysis with projections for the influence of anthropogenic activity. Planetary and Space Science, Vol. 25, pp. 521-540.

Smyth, W.B. and McElroy, M.B. The sodium and hydrogen gas clouds of Io. Planetary and Space Science, Vol. 25, p. 415.

Wofsy, S.C. and McElroy, M.B. Auroral recombination of N and O: a possible source for emission of the UPSILON and delta bands of NO. Planetary and Space Science, Vol. 25, p. 1021.

Yung, Y.L., Strobel, D.F., Kong, T.Y. and McElroy, M.B. Photochemistry of nitrogen in the Martian atmosphere. Icarus, Vol. 30, p. 26.

1976

Fang, T.M., Smyth, W.H., and McElroy, M.B. The spatial distribution of long lived gas clouds emitted by satellites in the outer solar system. Planetary and Space Science, Vol. 24, p. 577.

McElroy, M.B. Man's impact on the global environment: some recent problems in atmospheric pollution. Atomic Processes and Applications, P.G. Burke and B.L. Moiseiwitsch, eds., p. 71, North Holland Pub. Co.

McElroy, M.B. Threats to the atmosphere. Harvard Magazine, February, p. l9.

McElroy, M.B., and Kong, T. Y. Oxidation of the Martian surface: constraints due to chemical processes in the atmosphere. Geophysical Research Letters, Vol. 3 No. 9, p. 569.

McElroy, M.B. and Yung, Y.L. Oxygen isotopes in the Martian atmosphere: implications for the evolution of volatiles. Planetary and Space Science, Vol. 24, p. 1107.

McElroy, M.B., Elkins, J.W. Wofsy, S.C., and Yung, Y.L. Sources and sinks for atmospheric N2O. Reviews of Geophysics and Space Physics, Vol. 14, p. 143.

McElroy, M.B., Kong, T.Y., Yung Y.L. and Nier, A.O. Composition and structure of the Martian upper atmosphere. Science, Vol. 194, p. 1295.

McElroy, M.B., Yung, Y.L., and Nier, A.O. Isotopic composition of nitrogen: implications for the past history of Mars' atmosphere. Science, Vol. 194, No. 4260, p. 70.

Nier, A.O., Hanson, W.B., Seiff, A., McElroy, M.B., Spencer, N.W., Duckett, R.J., Knight, T.C.D., and Cook, W.S. Composition and structure of the Martian atmosphere: preliminary results from Viking 1. Science, Vol. 193, No. 4255, p. 786.

Nier, A.O., McElroy, M.B., and Yung, Y.L. Isotopic composition of the Martian atmosphere. Science, Vol. 194, no. 4260, p. 68.

Yung, Y.L. and McElroy, M.B. Stability of an oxygen atmosphere on Ganymede. Icarus, 30, p. 97.

1975

McElroy, M.B. Chemical processes in the solar system: A kinetic perspective. Chemical Kinetics, International Review of Science, Physical Chemistry, Vol. 9, p. 127.

Wofsy, S.C. , McElroy, M.B., and Sze, N.D. Freon consumption: implications for atmospheric ozone. Science, Vol. 187, pp. 535-537.

Wofsy, S.C., McElroy, M.B., and Yung, Y.L. The chemistry of atmospheric bromine. Geophysical Research Letters, Vol. 2, No. 6, p. 215.

Yung, Y.L., McElroy, M.B., and Wofsy, S.C. Atmospheric halocarbons: A discussion with emphasis on chloroform. Geophysical Research Letters, Vol. 2, No. 9.

1974

Anderson, D.G.M., Antal, M.J., and McElroy, M.B. The triple centre approximation for charge exchange in atomic scattering theory. (Letter to the Editor.) J. Phys. B: Atom. Molecular Physics, Vol. 7, No. 4.

Atreya, S.K., Donahue, T.M., and McElroy, M.B. Jupiter's ionosphere: prospects for Pioneer 10. Science, Vol. 184, pp. 154-156.

Broadfoot, A.L., Kumar, S., Belton, M.J.S., and McElroy, M.B. Ultraviolet observations of Venus from Mariner 10: preliminary results. Science, Vol. 183, pp. 1315-1318.

Broadfoot, A.L., Kumar, S., Belton, M.J.S., and McElroy, M.B. Mercury's atmosphere from Mariner 10: preliminary results. Science, Vol. 185, pp. 166-169.

McElroy, M.B. The Atmosphere and Ionosphere of Jupiter. Atmospheres of Earth and the Planets, B.M. MocCormac, Editor, D. Reidel Pub. Co., Dordrecht, Holland.

McElroy, M.B. Detente in Space. Natural History Magazine, November.

McElroy, M.B. and Yung, Y.L. The Atmosphere and Ionosphere of Io. The Astrophysical Journal, Vol. 196, pp. 227-250.

McElroy, M.B., Yung, Y.L., and Brown, R.A. Sodium emission from Io: implications. The Astrophysical Journal, Vol. 187, pp. L127-L130.

McElroy, M.B., Wofsy, S.C., Penner, J.E. and McConnell, J.C. Atmospheric ozone: possible impact of stratospheric aviation. Journal of Atmospheric Sciences, Vol. 32, No. 1, pp. 287-303.

Sze, N.D., and McElroy, M.B. Some problems in Venus' aeronomy. Planetary and Space Science 23, p. 763.

Wofsy, S.C., and McElroy, M.B. HOx , NOx and ClOx: their role in atmospheric photochemistry. Canadian Journal of Chemistry, Vol. 52, No. 8, Part 2, pp. 1582-1591.

1973

McConnell, J.C., and McElroy, M.B. Odd nitrogen in the atmosphere. Journal of Atmospheric Sciences, Vol. 30, No. 8, pp. 1465-1480.

McElroy, M.B. Atomic and molecular processes in the Martian atmosphere. Advances in Atomic and Molecular Physics, Vol. 9, Academic Press, N.Y.

McElroy, M.B. The ionospheres of the major planets. Space Science Reviews, Vol. 14, pp. 460-473.

McElroy, M.B., Sze, N.D., and Yung, Y.L. Photochemistry of the Venus atmosphere. Journal of Atmospheric Sciences, Vol. 30, No. 7, pp. 1437-1447.

Noll, R.B., and McElroy, M.B. Engineering models of the Venus atmosphere. Journal of Spacecraft and Rockets, Vol. 11, No. 1, pp. 21-28.

Noll, R.B., and McElroy, M.B. Near-Earth charged particle radiation. NASA ASITR-73-13.

Wofsy, S.C., and McElroy, M.B. On vertical mixing in the upper stratosphere and lower mesosphere. Journal of Geophysical Research, Vol. 78, No. 15, pp. 2619-2624.

1972

McElroy, M.B. Mars: an evolving atmosphere. Science, Vol. 175, pp. 443-445.

McElroy, M.B., and Donahue, T.M. Stability of the Martian atmosphere. Science, Vol. 177, pp. 986-988.

Nier, A.O., Hanson, W.B., McElroy, M.B., Seiff, A., and Spencer, N.W. Entry science experiments for Viking 1975. Icarus, Vol. 16, pp. 74-91.

Noll, R.B., and McElroy, M.B. Models of Venus atmosphere. NASA SP-8011.

Wofsy, S.C., McConnell, J.C. and McElroy, M.B. Atmospheric CH4 ,CO, and CO2. Journal of Geophysical Research, Vol. 77, No. 24, pp. 4477-4493.

1971

Belton, M.J.S., and McElroy, M.B. The atmosphere of Uranus. The Astrophysical Journal, Vol. 164, pp. 191-209.

McConnell, J.C., McElroy, M.B., and Wofsy, S.C. Natural source of atmospheric CO. Nature, Vol. 233, No. 5316, pp. 187-188.

McElroy, M.B. Venus: a mystery still to unfold. Astronautics and Aeronautics, Vol. 9, pp. 18-21.

McElroy, M.B. The composition of planetary atmospheres. Journal of Quantitative Spectroscopy and Radiative Transfer, Vol. 11, pp. 813-825.

McElroy, M.B., and McConnell, J.C. Dissociation of CO2 in the Martian atmosphere. Journal of Atmospheric Sciences, Vol. 28, No. 6, pp. 879-884.

McElroy, M.B., and McConnell, J.C. Nitrous Oxide: a natural source of stratospheric NO. Journal of Geophysical Research, Vol. 28, No. 6, pp. 1095-1098.

McElroy, M.B., and McConnell, J.C. Atomic carbon in the atmospheres of Mars and Venus. Journal of Geophysical Research, Vol. 76, No. 28, pp. 6674-6690.

1970

Dalgarno, A., and McElroy, M.B. Mars: is nitrogen present? Science, Vol. 170, pp. 167-168.

Hunten, D.M., and McElroy, M.B. Production and escape of hydrogen on Mars. Journal of Geophysical Research, Space Physics, Vol. 75, No. 31.

McConnell, J.C., and McElroy, M.B. Excitation processes for Martian dayglow. Journal of Geophysical Research, Space Physics, Vol. 75, No. 34.

McElroy, M.B. Ionization processes in the atmospheres of Venus and Mars. Annales de Geophysique, Vol. 26, 2 pp. 643-652.

McElroy, M.B. Research in planetary atmospheres. Transactions of the International Astronomical Union: Reports on Astronomy, SIV A, pp. 158-151, published by Reidel Pub. Co., Dordrecht-Holland.

McElroy, M.B., and Hunten, D.M. Photochemistry of CO2 in the atmosphere of Mars. Journal of Geophysical Research, Vol. 75, No. 7. Kitt Peak No. 521.

Strobel, D.F. and McElroy, M.B. The F2 layer at middle latitudes. Planetary and Space Science, Vol. 18, pp. 1181-1202.

Strobel, D.F., Hunten, D.M. and McElroy, M.B. Production and diffusion of nitric oxide. Journal of Geophysical Research, Space Physics, Vol. 75, No. 22.

1969

Cloutier, P.A., McElroy, M.B., and Michel, F.C. Modifications of the Martian ionosphere by the solar wind. Journal of Geophysical Research, Vol. 74, No. 26. Kitt Peak No. 503.

Dalgarno, A., McElroy, M.B., and Stewart, A.I. Electron impact excitation of the dayglow. Journal of the Atmospheric Sciences, Vol. 26, No. 4. Kitt Peak No. 446.

Henry, R.J.W., and McElroy, M.B. The absorption of extreme ultraviolet solar radiation by Jupiter's upper atmosphere. Journal of the Atmospheric Sciences, Vol. 26, No. 5. Kitt Peak No. 465.

McElroy, M.B. Structure of the Venus and Mars Atmospheres. Journal of Geophysical Research, Vol. 74, No. 1. Kitt Peak No. 373.

McElroy, M.B. Atmospheric composition of the jovian planets. Journal of the Atmospheric Sciences, Vol. 26, No. 5, Kitt Peak No. 466.

McElroy, M.B., and Hunten, D.M. Molecular hydrogen in the atmosphere of Mars. Journal of Geophysical Research, Vol. 74, No. 24, Kitt Peak No. 477.

McElroy, M.B., and Hunter, D.M. The ratio of deuterium to hydrogen in the Venus atmosphere. Journal of Geophysical Research, Vol. 74, No. 7. Kitt Peak No. 406.

McElroy, M.B. and Strobel, D.F. Models for the nighttime Venus ionosphere. Journal of Geophysical Research, Vol. 74, No. 5. Kitt Peak No. 387.

1968

Dalgarno, A., McElroy, M.B., Rees, M.H., and Walker, J.C.G. The effect of oxygen cooling on ionospheric electron temperatures. Planetary and Space Science, Vol. 16, No. 11. Kitt Peak No. 358.

Henry, R.J. and McElroy, M.B. Photoelectrons in planetary atmospheres. The atmospheres of Venus and Mars , Gordon and Breach, New York, 251-285. Kitt Peak No. 244.

Hunten, D.M. and McElroy, M.B. The upper atmosphere of Venus: the regulus occulation reconsidered. Journal of Geophysical Research, Vol. 73, No. 13. Kitt Peak No. 323.

Hunten, D.M., and McElroy, M.B. Metastable O2(1)as a major source of ions in the D region. Journal of Geophysical Research, Vol. 73, No. 7 Kitt Peak No. 303.

McElroy, M.B. The upper atmosphere of Venus. Journal of Geophysical Research, Vol. 73, No. 5. Kitt Peak No. 296.

McElroy, M.B. The upper atmosphere of Venus in light of Mariner 5 measurements. Journal of Atmospheric Sciences, Vol. 25, No. 4. Kitt Peak No. 330.

Shea, M.F., Sharp, R.D., and McElroy, M.B. Measurement and interpretation of low-energy photoelectrons. Journal of Geophysical Research Vol. 73, No. 13. Kitt Peak No. 324.

1967

Belton, M.J.S., Hunten, D.M., and McElroy, M.B. A search for an atmosphere on Mercury. Astrophysical Journal, Vol. 150, No. 3, Part 1. Kitt Peak No. 253.

Dalgarno, A., McElroy, M.B., and Walker, J.C.G. The diurnal variation of ionospheric temperatures. Planetary and Space Science, Vol. 25, No. 2. Kitt Peak No. 218.

McElroy, M.B. Atomic nitrogen ions in the upper atmosphere. Planetary and Space Science, Vol. 15, No. 3. Kitt Peak No. 201.

McElroy, M.B. The upper atmosphere of Mars. Astrophysical Journal. Vol. 150, No. 3, Part 1. Kitt Peak No. 257.

1966

Chamberlain, J.W. and McElroy, M.B. Martian Atmosphere: an interpretation of the Mariner occultation experiment. Science, Vol. 152, No. 3718, pp. 21-25. Kitt Peak No. 148.

Chamberlain, J.W., and McElroy, M.B. Diffuse reflection by an inhomogeneous planetary atmosphere. Astrophysical Journal, Vol. 144, No. 3, Kitt Peak No. 141.

Dalgarno, A., and McElroy, M.B. Twilight effects of solar ionizing radiation. Planetary Space Science, Vol. 14, pp. 1321-1329. Kitt Peak No. 200.

Hunten, D.M. and McElroy, M.B. Quenching of metastable states of atomic and molecular oxygen and nitrogen. Reviews of Geophysics, Vol. 4, No. 3. Kitt Peak No. 179.

McElroy, M.B., and Hunten, D.M. A method of estimating the earth albedo for dayglow measurements. Journal of Geophysical Research, Vol. 71, No. 15. Kitt Peak No. 172.

Walker, J.C.G., and McElroy, M.B. Diffusion in the lower ionosphere at night. Journal of Geophysical Research, Vol. 71, No. 15. Kitt Peak No. 173.

Wallace, L., and McElroy, M.B. The visual dayglow. Planetary and Space Science, Vol. 14, pp. 677-708. Kitt Peak No. 171

1965

Brandt, J.C., Broadfoot, A.L., and McElroy, M.B. The detection of 3889 of orthohelium in the twilight airglow. Astrophysical Journal, Vol. 141, pp. 1584-1586. Kitt Peak No. 89.

Curtiss, C.F., McElroy, M.B., and Hoffman, D.K. The transport properties of a moderately dense Lennard-Jones gas. International Journal of Engineering Sciences, Vol. 3, pp. 269-283. Kitt Peak No. 74.

Dalgarno, A., and McElroy, M.B. Ionospheric electron temperatures near dawn. Planetary and Space Science, Vol. 13, No. 2. Kitt Peak No. 77.

Dalgarno, A., and McElroy, M.B. The fluorescence of solar ionizing radiation. Planetary and Space Science, Vol. 13, No. 10. Kitt Peak No. 114.

Lovell, S.E., and McElroy, M.B. Importance of coupling for inelastic collisions between protons and hydrogen atoms. Proceedings of the Royal Society, A., Vol. 283, No. 1392. Kitt Peak No. 73.

McElroy, M.B. Excitation of atmospheric helium. Planetary and Space Science, Vol. 13, No. 5. Kitt Peak No. 84.

McElroy, M.B. Some excitation mechanisms for the day airglow (Abstract). Transactions of the American Geophysical Union, 46, 61.

McElroy, M.B., L'Ecuyer, J., and Chamberlain, J.W. Structure of the martian upper atmosphere. Astrophysical Journal, Vol. 141, No. 4. Kitt Peak No. 88.

1964

McElroy, M.B. Models for the terrestrial atmosphere above the 120 km level. Kitt Peak No. 55.

McElroy, M.B. Effect of resonance charge transfer on excitation for proton hydrogen collisions. Bulletin of the American Physics Society, Vol. 11, 9, p. 183.

1963

Dalgarno, A., and McElroy, M.B. Fluorescence of solar ionizing radiation. Planetary Space Science, Vol. 11, pp. 727-728.

Dalgarno, A., McElroy, M.B. and Moffett, R.J. Electron temperatures in the ionosphere. Planetary Space Science, Vol. 11, p. 463.

McElroy, M.B. Fluorescence of solar ionizing radiation. (Abstract) Transactions of the American Geophysical Union, 44, 84.

McElroy, M.B. Electron capture by fast protons and -particles in hydrogen. Proceedings of the Royal Society, A, Vol. 272, pp. 542-556.

McElroy, M.B., and Hirschfelder, J.O. Hypervirial theorem for collisions between electrons and atoms. The Physical Review, Vol. 131, No. 4, pp. 1589-1595.

1962

Dalgarno, A., McElroy, M.B., and Moffett, R.J. Planetary aeronomy VI: electron temperatures in the ionosphere. GCA Technical Report No. 62-11-N.

McCarroll, R., and McElroy, M.B. Electron capture by a-particles in hydrogen. Proceedings of the Royal Society, A, Vol. 266, pp. 422-428.