

## CURRICULUM VITAE

**Michael B. McElroy**  
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Cambridge, MA 02138  
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### Professional Experience

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|----------------------------|--|
| 1993 to present            | Chair, Harvard-China Project on Energy, Economy and Environment  |
| 1996 to present            | Gilbert Butler Professor of Environmental Studies, Harvard University  |
| 1998-2006; 2017 to present | Member, China Council for International Cooperation on Environment and Development   |
| 2001 to 2004               | Director, Harvard University Center for the Environment  |
| 1995                       | Chairman, MEDEA, Task Force appointed by Vice-President Gore to advise on environmental aspects of U.S. Intelligence   |
| 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**

2020

Meng Gao, Jinhui Gao, Bin Zhu, Rajesh Kumar, Xiao Lu, Shaojie Song, Yuzhong Zhang, Beixi Jia, Peng Wang, Gufran Beig, Jianlin Hu, Qi Ying, Hongliang Zhang, Peter Sherman, and Michael B. McElroy. 2020. "[Ozone pollution over China and India: seasonality and sources.](#)" *Atmospheric Chemistry and Physics*, 20, 7.

Meng Gao, Zirui Liu, Bo Zheng, Dongsheng Ji, Peter Sherman, Shaojie Song, Jinyuan Xin, Cheng Liu, Yuesi Wang, Qiang Zhang, Jia Xing, Jingkun Jiang, Zifa Wang, Gregory R. Carmichael, and Michael B. McElroy. 2020. [China's emission control strategies have suppressed unfavorable influences of climate on wintertime PM2.5 concentrations in Beijing since 2002.](#) *Atmospheric Chemistry and Physics*, 20, 3.

Archana Dayalu, J. William Munger, Yuxuan Wang, Steven C. Wofsy, Yu Zhao, Thomas Nehrkorn, Chris P. Nielsen, Michael B. McElroy, and Rachel Chang. 2020. [Evaluating China's](#)

[anthropogenic CO2 emissions inventories: a northern China case study using continuous surface observations from 2005 to 2009](#). *Atmospheric Chemistry and Physics*, 20, 3.

Peter Sherman, Eli Tziperman, Clara Deser, and Michael B. McElroy. 2020. [Historical and future roles of internal atmospheric variability in modulating summertime Greenland Ice Sheet melt](#). *Geophysical Research Letters*, 47, 6.

Peter Sherman, Xinyu Chen, and Michael B. McElroy. 2020. [Offshore wind: an opportunity for cost-competitive decarbonization of China's energy economy](#). *Science Advances*, 6, 8, Pp. eaax9571.

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.

Shaojie Song, Athanasios Nenes, Meng Gao, Yuzhong Zhang, Pengfei Liu, Jingyuan Shao, Dechao Ye, Weiqi Xu, Lu Lei, Yele Sun, Baoxian Liu, Shuxiao Wang, and Michael B. McElroy. 2019. [Thermodynamic modeling suggests declines in water uptake and acidity of inorganic aerosols in](#)

[Beijing winter haze events during 2014/2015–2018/2019.](#) *Environmental Science & Technology Letters*, 6, Pp. 752-760.

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 CO<sub>2</sub> 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 CO<sub>2</sub>.](#) *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<sub>2.5</sub> 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 CO<sub>2</sub>](#). *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<sub>2</sub>](#). *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<sub>2</sub> 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<sub>2</sub> 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<sub>2</sub> 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 CO<sub>2</sub> 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 NO<sub>x</sub> 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 O<sub>3</sub> 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. [CO<sub>2</sub> 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<sub>3</sub> 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<sub>x</sub> 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<sub>x</sub> 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<sub>2</sub>O and NO<sub>x</sub>](#). *Global Biogeochem. Cy.* 19, GB2008.

2004

Wang, J.S., J.A. Logan, M.B. McElroy, B.N. Duncan, I.A. Megretskaya, 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<sub>x</sub>: 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<sub>2</sub> 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  $\delta^{13}C$  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.

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1996

McElroy, M. B., and D. B. A. Jones. 1996. Evidence for an Additional Source of Atmospheric N<sub>2</sub>O. *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 CO<sub>2</sub>, N<sub>2</sub>O and CH<sub>4</sub>, *Geophys. Res. Lett.*, 21, 2571-2574.

1993

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1992

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1991

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1990

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