

Dr. Wei-Chyung Wang

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Professor Emeritus
University at Albany
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EDUCATION

B.S. 1965 Mechanical Engineering, National Cheng Kung University, Tainan, Taiwan
M.S. 1970 Mechanical Engineering, SUNY at Buffalo, Buffalo, NY
D. Eng. Sc. 1973 Mechanical Engineering, Columbia University, New York, NY
Dissertation: The radiative effect of aerosols in the Earth's atmosphere, 1974, *J. Applied Meteor.*, **13**, 521-534
doi:10.1175/1520-0450(1974)013<0521:TREOAI>2.0.CO;2

EMPLOYMENT

3/2024- Professor Emeritus, SUNY at Albany, NY 12222
1991-2024 (Tenured) Full Professor of Applied Sciences, SUNY at Albany, Albany, NY 12222
1989-91 Senior Research Associate, Atmospheric Sciences Research Center, SUNY at Albany,
251 Fuller Road, Albany, NY 12203
1980-89 Manager of Climate Program (80-89) & Vice President for Research (86-89), Atmospheric and
Environmental Research, Inc. 840 Memorial Drive, Cambridge, MA 02139
1973-79 National Academy of Sciences-National Research Council Postdoctoral Research
Associate (73-75); Senior Research Scientist (75-79; Sigma Data, Inc.), Goddard Institute for Space
Studies, National Aeronautics and Space Administration, 2880 Broadway, New York, NY 10025

HONORS AND AWARDS

2022 Fellow, Meteorological Society of the Republic of China.
2016 Award for Outstanding (Department) Alumni, Mechanical Engineering, National Cheng Kung University,
Tainan, Taiwan.
2008 Member, Norwegian Academy of Science and Letters.
2005 Certificate of Appreciation for “tremendous contribution to the strengthening of the cooperation between
scientists of China and the United States in climate change study”, Bureau of Science and Technology for
Resources and Environment, Chinese Academy of Sciences.
2002 Award for Scientific Achievements in Environmental Physics, European Physical Society/Balkan Physical
Union
1999 Appreciation Plaque, Office of Science, Department of Energy, with citation “For your insightful counsel and
excellent science. You have proven to be the cornerstone for the success of the joint global change research
program between the U.S. Department of Energy and the Chinese Academy of Sciences with your service as
the U. S. Chief Scientist”
1994 Award for Excellence in Research, University at Albany, State University of New York
1987 Certificate of Appreciation, Basic Energy Sciences/Office of Energy Research, Department of Energy; with
citation “invaluable contribution to the scientist-to-scientist collaborative Carbon Dioxide and Climate
Research Program of the United States Department of Energy and the People's Republic of China's Academy of
Sciences, for sustaining his high scientific productivity while providing intellectual leadership to both the U.S.
and Chinese scientists, and for the generosity with which he gave his expert counsel”

RESEARCH EXPERIENCE

Study Focuses With broad background in atmospheric radiation, climate modeling and data analysis, Wang uses observations and (regional and global) climate model simulations to study: (1) climate effects of changes in atmospheric trace constituents (greenhouse gases, ozone, and aerosols); (2) historical climate in China; (3)

climate-chemistry interactions involving ozone; (4) aerosol-cloud-climate-precipitation interactions; (5) extreme weather events in a changing global climate; and (6) Applications of AI for weather forecast and climate changes.

Wang has over 190 refereed journal publications in more than 30-journals including *Science* and *Nature*, notably the 1976 *Science* article on the importance (relative to CO₂) of the greenhouse effects of atmospheric trace gases including CH₄ and N₂O; the 1980 *Nature* article on the climate significance of atmospheric O₃ change in “upper troposphere and lower stratosphere”; and the 1991 *Nature* article on the differences in radiative *signature* between CO₂ and other greenhouse gases.

Significant Research Activities During the period 1987-2019, Wang has been serving as the U.S. Chief Scientist for the “Climate Sciences” agreement between the U. S. Department of Energy and the Chinese Academy of Sciences with focus on: Reconstruction and model simulation of climate over East Asia in the past 1,000 years; Development of field measurement programs to understand the aerosol indirect effect, and Improving the modeling capability for predicting regional climate and future climate changes. He has hosted many visiting scientists from participating academic institutes from China and Taiwan.

Wang was the founding member of two international activities: (1994-2020) the “GCM simulations of East Asia Climate (EAC)” which aims at evaluating the models’ ability in simulating the climate features (e.g., summer monsoon) for the models’ further improvement; and (1997-2020) the “East Asian Climate and Environment (EACE)”, which studies the changes of atmospheric composition (e.g., ozone and aerosols) and climate-chemistry interactions over East Asia.

Research Grants (x10³ US\$):

- 2/1980-8/1989, AER: Total (6,024)
 - US Federal Agencies: DOE (4,019); NSF (644); NASA (418); Air Force Geophysical Lab. (191); FAA (73); Defense Nuclear Agency (68).
 - Private Industry: Chem. Manu. Assoc. (505); AFEAS (68); Dupont (28); Allied Chem. (10)
- 9/1989-1/2019, SUNYA (Single PI): Total (14,381)
 - US Federal Agencies: DOE (12,267); NSF (1,741); NASA (327).
 - Private Industry: EPRI (47)

EDUCATION EXPERIENCE

Graduate Courses: "Climate Modeling" and "Atmospheric Radiation" at the Department of Atmospheric and Earth Sciences, University at Albany, State University of New York.

Graduate Students with Degree:

SUNY at Albany:

1. Department of Atmospheric and Environmental Sciences:
 - a. *PhD (9)*--
 - Zhang, Yi., 1995: Extratropical cyclone-scale eddies simulated from a climate model.
 - Ding, Ming, 1997: Evaluation of GCM shortwave radiation parameterization for gases, aerosols, and clouds.
 - Mao, Huiting, 1999: Climate-chemistry interaction affecting tropospheric ozone.
 - Cox, Stephen, 2000: Modeling the direct and indirect effects of tropospheric sulfate aerosols.
 - Notaro, Michael, 2002: Model and observational analysis of the Northeast’s regional winter climate and its relationship to the PNA Patterns.
 - Cheng, Chao-Tzuen, 2002: A regional climate model study of cloud radiative forcing and its role in the 1991 East Asian summer monsoon.
 - Huang, Chu-Chun, 2017: Sensitivity of Meiyu front to aerosol spatial distribution over Yangtze-Huai River Valley.
 - Song, Yangyang, 2018: Aerosol direct and cloud adjustment effects over Eastern China: Analysis of WRF model simulations.

- Wang, Chi-Yun, 2021 (in progress): The effects of meteorology on the interannual variability of PM2.5 in East Asia. Ph.D., Dual degree between Dept. of Atmospheric and Environmental Sciences, SUNY at Albany and Dept. of Atmospheric Sciences, National Taiwan University.
- b. *MS (9)*--
- Ding, Ming, 1992: Radiative forcing due to stratospheric ozone depletion.
- Zhuang, Yicheng, 1993: Radiative forcing due to changes in tropospheric ozone.
- Zhong, Min, 1994: The greenhouse effect of the present Earth-atmosphere climate system.
- Tu, Peihua, 1996: Interannual climate variability in Taiwan: An analysis of observational data.
- Notaro, Michael, 1998: Interannual and decadal climate variability in cold surge frequency: A synoptic-climatology perspective.
- Wasula, Thomas, 2000: A quantitative method of defining the Mei-Yu rain belt onset in Southeast China and its association with large-scale and synoptic features.
- Wang, Jing, 2000: Potential effect on stratospheric temperature and radiative forcing of ozone and water vapor perturbation.
- Tanaka, Hirohisa, 2009: Climatic effects of tropospheric ozone.
- Chen, Yimin, 2009: The effect of climate-chemistry interaction on sulfate: A global model study.
2. *Department of Physics (PhD; 2)*
- Joseph, Everette, 1997: Development and application of an interactive cirrus cloud radiative parameterization for GCMs.
- Zhu, Li, 2000: An analysis of observation and GCM simulations of seasonal cycle of monsoon climate in southeast Asia and Tibet Plateau.
3. *Department of Political Sciences (PhD; 1)*
- Lee, Hocking, 1997: China's Participation in the United Nations Framework Convention on Climate Change.
4. *Department of Biological Sciences (MS; 1)*
- Fox, Sarah, 1995: Biological processes and the land surface: Influences on global climate change.

Other Institutions: PhD (8)

- Gong, Wei, 1992: A diagnostical study of general circulation model simulated changes in hydrological components due to the greenhouse effects. Ph.D., Dept. of Geophysics, Peking University. (Prof. Zhou Xiuji)
- Wei, Helin, 1997: Regional climate model and its use for studying climate over east Asia. Ph.D., Institute of Atmospheric Physics, Chinese Academy of Sciences. (Prof. Fu Zongbin)
- Zeng, Gang, 2008: Numerical study of the effects SSTA on inter-decadal variation of East Asian summer monsoon. Ph.D., Dept. of Atmospheric Sciences, Nanjing University of Information Sciences & Technology (formerly Nanjing Institute of Meteorology). (Prof. Sun Zhaobo)
- Zhang, Xuezheng, 2009: Land cover change due to agriculture development over the Northeast China since mid-17th century and its implications to climate. Ph.D., School of Geography, Beijing Normal University. (Prof. Fang Xueqi)
- Peng, Youbing, 2009: Modeling studies on the impacts of external and internal factors of the climate system on climate changes during last millennium. Ph.D., Lanzhou University. (Prof. Xu Ying)
- Li, Zhe, 2015: Meteorological and aerosol effects on marine stratocumulus. Ph.D., Dept. of Atmospheric and Oceanic Sciences, Peking University. (Prof. Xue Huaiwen)
- Zhou, Siyuan, 2020: Diurnal variation of heavy rainfall over the Beijing-Tianjin-Hebei region: WRF-Chem model study. Ph.D., Faculty of Geographical Sciences, Beijing Normal University. (Prof. Yang Jing)
- Yang, Xiaoye, 2023: Variations in summer extreme high temperature events in Northeast Asia based on atmospheric circulation classification and the possible mechanism. Ph.D., College of Atmospheric Sciences, Nanjing University of Information Sciences & Technology. (Prof. Zeng Gang)

Postdoctoral Research Associates (13, in alphabetic order)

1. Chen, Guoxing, Beijing University (8/2013-8/2016)
2. Cheng, Chao-Tzuen, SUNY-Albany (1/2003-2/2006)
3. Dudek, Michael, SUNY-Albany (2/1990-9/1990)
4. Hao, Zhixin, Institute of Geophysical Sciences and Natural Resource Research, Chinese Academy of Sciences (12/2003-3/2006)
5. Joseph, Everette, SUNY-Albany (6/1997-6/1998)

6. Li, Jiandong, Institute of Atmospheric Physics, Chinese Academy of Sciences (8/2010-9/2012)
7. Samel, Arthur, University of North Carolina at Chapel Hill (5/1992-5/1995)
8. Shen, Caiming, Louisiana State University (9/2003-6/2007)
9. Tao, Lijun, Beijing University (3/2016-3/2018)
10. Wong, Sun, Columbia University (1/1999-7/2003)
11. Zeng, Gang, Nanjing University of Information and Technology (2/2009-1/2010)
12. Zhang, Yi, SUNY-Albany (5/1995-10/1995)
13. Zhang, Jingyong, Institute of Atmospheric Physics, Chinese Academy of Sciences (9/2005-8/2008)

JOURNAL PUBLICATIONS

Wang has over 180 publications in over 30-refereed journals, including *Nature* (4) and *Science* (3).

1974:

1. Wang, W.-C., and G.A. Domoto, 1974: Radiative transfer in homogeneous nongray gases with nonisotropic particle scattering. *J. Heat Transfer*, August, 385-390.
2. Wang, W.-C., and G.A. Domoto, 1974: The radiative effect of aerosols in the Earth's atmosphere. *J. Appl. Meteor.*, doi:10.1175/1520-0450(1974)013<0521:TREOAI>2.0.CO;2.

1976:

3. Wang, W.-C., 1976: A parameterization for the absorption of solar radiation by water vapor in Earth's atmosphere. *J. Appl. Meteor.* **15**, 21-27.
4. Wang, W.-C., Y.L. Yung, A.A. Lacis, T. Mo, and J.E. Hansen, 1976: Greenhouse effects due to man-made perturbations of trace gases. *Science*, doi:10.1126/science.194.4266.685.
5. Yung, Y.L., W.-C. Wang, and A.A. Lacis, 1976: Greenhouse effect due to atmospheric nitrous oxide. *Geophys. Res. Lett.*, doi:10.1029/GL003i010p00619.

1978:

6. Hansen, J.E., W.-C. Wang, and A.A. Lacis, 1978: Mount Agung eruption provides test of a global climatic perturbation. *Science*, **199**, 1065-1068. doi:10.1126/science.199.4333.1065.

1980:

7. Hansen, J.E., A.A. Lacis, P. Lee, and W.-C. Wang, 1980: Climatic effect of atmospheric aerosol. Aerosols: Anthropogenic and natural sources and transport. *Ann. N.Y. Acad. Sci.*, **338**, 575-587.
8. Wang, W.-C., J.P. Pinto, and Y.L. Yung, 1980: Climatic effects due to halogenated compounds in the Earth's atmosphere. *J. Atmos. Sci.*, **37**, 333-338.
9. Wang, W.-C., and P.H. Stone, 1980: Effect of ice-albedo feedback on global sensitivity in a one-dimensional radiative-convective model. *J. Atmos. Sci.*, **37**, 545-552.
10. Wang, W.-C., and N.D. Sze, 1980: Coupled effects of atmospheric N₂O and O₃ on the Earth's climate. *Nature*, doi:10.1038/286589a0.

1981:

11. Wang, W.-C., W.B. Rossow, M.S. Yao, and M. Wolfson, 1981: Climate sensitivity of a one-dimensional radiative convective model with cloud feedback. *J. Atmos. Sci.*, **38**, 1167-1178.

1982:

12. Wang, W.-C., 1982: Ozone change: Climatological effects. In *Man and Stratospheric Ozone*, F.A. Bower and R.B. Ward (eds.), Volume II, CRC Press, 123-135.

1983:

13. Wang, W.-C., and P.B. Ryan, 1983: Overlapping effect of atmospheric H₂O, CO₂, and O₃ on the CO₂ radiative effect. *Tellus*, **35B**, 81-91.
14. Wang, W.-C., 1983: An analytical expression for the total band absorption of infrared-radiating gases. *J. Quant. Spectros. Radiat. Transfer*, **29**, 279-281.
15. Wang, W.-C., 1983: Climatic effects due to man-made perturbations of atmospheric trace gases. *Scientia Atmospherica Sinica*, **7**, 210-222 (in Chinese).

1984:

16. Hameed, S., W.M. Yeh, M.T. Li, R.D. Cess, and W.-C. Wang, 1983: An analysis of periodicities in the 1470 to 1974 Beijing precipitation record. *Geophys. Res. Lett.*, **10**, 436-439. doi:10.1029/HG001p0139.
17. Molnar, G., and W.-C. Wang, 1984: Dynamical heat flux feedbacks and global climate stability. *Ann. Int. Glaciological Soc.*, **5**, 106-110.

18. Wang, W.-C., G. Molnar, T.P. Mitchell, and P.H. Stone, 1984: Effects of dynamical heat flux on model climate sensitivity. *J. Geophys. Res.*, **89**, 4699-4711.
- 1985:**
19. Gutowski, W.J., W.-C. Wang, and P.H. Stone, 1985: Effects of dynamical heat fluxes on model climate sensitivity: meridional sensible and latent heat fluxes. *J. Geophys. Res.*, **90**, 13081-13086.
 20. Wang, W.-C., and G. Molnar, 1985: A model study of the greenhouse effects due to increasing atmospheric CH₄, N₂O, CF₂Cl₂, and CFCI₃. *J. Geophys. Res.*, **90**, 12971-12980.
- 1986:**
21. Wang, W.-C., D. Wuebbles, W.M. Washington, R. Isaacs, and G. Molnar, 1986: Trace gases and other potential perturbations of global climate. *Rev. Geophys.*, **24**, 110-140.
 22. Shi, G.-Y., W.-C. Wang, M.K.W. Ko, and M. Tanaka, 1986: Radiative heating due to stratospheric aerosols over Antarctica. *Geophys. Res. Lett.*, **13**, 1335-1338.
- 1987:**
23. Isaacs, R.G., W.-C. Wang, R.D. Worsham, and S. Goldenberg, 1987: Multiple scattering LOWTRAN and FASCODE models. *Appl. Opt.*, **26**, 1272-1281.
 24. Ronberg, B., and W.-C. Wang, 1987: Climate patterns derived from Chinese proxy precipitation records: An evaluation of the station networks and statistical techniques. *J. Climatology*, **7**, 215-229.
- 1988:**
25. Wang, W.-C., N.D. Sze, G. Molnar, M.K.W. Ko, and S. Goldenberg, 1988: Ozone-climate interactions associated with increasing atmospheric trace gases. *Tropospheric Ozone: Regional and Global Scale Interactions*, I.S.A. Isaksen (ed.) D. Reidel Publ. Co., 147-159.
 26. Wang, W.-C. and G.-Y. Shi, 1988: Total band absorptances and k-distribution for atmospheric gases., *J. Quant. Spectros. Radiat. Transfer*, doi:10.1016/0022-4073(88)90104-5.
 27. Koomanoff, F., T. Ye, M.R. Riches, C. Zhao, W.-C. Wang, and S. Tao, 1988: U.S. Department of Energy and P.R.C. Chinese Academy of Sciences joint research on greenhouse effect. *Bull. Amer. Meteor. Soc.*, <https://www.jstor.org/stable/26227555>.
- 1989:**
28. Schneider, H., M.K.W. Ko, N.D. Sze, G.-Y. Shi, and W.-C. Wang, 1989: An evaluation of the role of eddy diffusion in Stratospheric interactive 2-D models. *J. Atmos. Sci.*, **46**, 2079-2093.
 29. Wang, W.-C., 1989: Review of "The Climate of China" by Domros and Peng. *Bull. Amer. Meteor. Soc.*, **70**, 794-795.
- 1990:**
30. Wang, W.-C., G. Molnar, M.K.W. Ko, S. Goldenberg and N.D. Sze, 1990: Atmospheric trace gases and global climate: A seasonal model study. *Tellus*, **42B**, 149-161.
 31. Fisher, D.A., C.H. Hales, W.-C. Wang, M.K.W. Ko, and N.D. Sze, 1990: Relative effects on global warming of halogenated methanes and ethanes of social and industrial interest. *Nature*, DOI: [10.1038/344513a0](https://doi.org/10.1038/344513a0).
 32. Jones, P. D., P. Y. Groisman, M. Coughlan, N. Plummer, W.-C. Wang and T. R. Karl, 1990: Assessment of urbanization effects in time series of surface air temperature over land. *Nature*, **347**, 169-172, doi: [10.1038/347169a0](https://doi.org/10.1038/347169a0).
 33. Mohnen, A. V., W. Goldstein, and W.-C. Wang, 1990: The scientific challenge of measuring climate change: Global warming and its energy implications. *Energy Policy*, September, 641-651.
 34. Wang, W.-C. and K. Li, 1990: Precipitation fluctuation over semiarid region in northern China and the relationship with El-Nino/Southern Oscillation. *J. Climate*, **3**, 769-783, doi:10.1175/1520-0442(1990)003<0769:PFOSRI>2.0.CO;2.
 35. Karl, T.R., W.-C. Wang, M.E. Schlesinger, R.W. Knight, and D. Portman, 1990: A method of relating general circulation model simulated local climate to the observed climate. Part I. Central tendencies and dispersion. *J. Climate*, **3**, 1053-1079.
 36. Wang, W.-C., Z. Zeng, and T. R. Karl, 1990: Urban heat islands in China. *Geophys. Res. Lett.*, **17**, 2377-2380.
 37. Li, K.-R. and W.-C. Wang, 1990: Climatic features of arid and semiarid region in China. *Chinese J. Arid Land Research*, **3**, 207-217.
 38. Li, K.-R., X. Lin and W.-C. Wang, 1990: The long-range variational trend of temperature in China from 1951 to 1988. *Geographical Res.* **9**, 26-36. (in Chinese with English subtitle); also in *The Journal Chinese Geography*, 1992, **3**, 82-96. (in English)
- 1991:**
39. Mohnen, V. A., W. Goldstein, and W.-C. Wang, 1991: The conflict over global warming: The application of scientific research to policy choices. *J. Global Environ. Change*, **1**, 109-123.

40. Gutowski, W.J., D.S. Gutzler, and W.-C. Wang, 1991: Surface energy balances of three general circulation models: Implications for simulating regional climate change. *J. Climate*, **4**, 121-134..
 41. Wang, W.-C., M. P. Dudek, X. Liang, and J. T. Kiehl, 1991: Inadequacy of effective CO₂ as a proxy in simulating the greenhouse effect of other radiatively active gases. *Nature*, <https://www.nature.com/articles/350573a0>.
 42. Wang, W.-C., G.-Y. Shi, and J.T. Kiehl, 1991: Incorporation of the thermal radiative effect of CH₄, N₂O, CFCl₃, and CF₂Cl₂ into the NCAR community climate model. *J. Geophys. Res.*, **96**, 9097-9103.
- 1992:**
43. Wang, W.-C., 1992: Climatic effects due to increasing atmospheric trace gases and their induced ozone changes. in *Ozone Depletion: Implications for the tropics*, (Ed.) M. Ilyas, University of Science Malaysia, Penang, pp. 292-301.
 44. Zhang, P.-Y, W.-C. Wang, and S. Hameed, 1992: Evidence for anomalous cold weather in China 1815-1817. in *The Year Without a Summer? World Climate in 1816* (Ed.) C. R. Harington, National Museum of Natural Sciences, Canada, pp. 436-447.
 45. Wang, W.-C., D. Portman, G. Gong, P. Zhang and T. Karl, 1992: Beijing summer temperatures since 1724, in *Climate Since A.D. 1500* (Eds.) R. Bradley and P. Jones, Routledge London, pp. 210-223.
 46. Portman, D. A., W.-C. Wang, and T. R. Karl, 1992: Comparison of general circulation model and observed regional climates: Daily and seasonal variability. *J. Climate*, **5**, 343-353.
 47. Riches, M. R., Zhao J., W.-C. Wang, and Tao, S., 1992: The United States' Department of Energy and the People's Republic of China's Academy of Sciences joint research on the greenhouse effect: 1985-1990 research progress. *Bull. Amer. Meteor. Soc.* [doi:10.1175/1520-0477\(1992\)073<0585:TUDOEAE>2.0.CO;2](https://doi.org/10.1175/1520-0477(1992)073<0585:TUDOEAE>2.0.CO;2)
 48. Molnar, G., and W.-C. Wang, 1992: Effects of cloud optical property feedbacks on the greenhouse warming. *J. Climate*, **5**, 814-821.
 49. Mohnen, V. A., and W. -C. Wang, 1992: An overview of global warming. *Environ. Toxicology and Chemistry*, **11**, 1051-1059.
 50. Wang, W.-C., M. P. Dudek, and X. Liang, 1992: Inadequacy of effective CO₂ as a proxy to assess the greenhouse effect of other radiatively active gases. *Geophys. Res. Lett.*, **19**, 1375-1378.
 51. Wang, W.-C., J. London, I. Isaksen, K., Shine, R. Ellingson, and F. Taylor, 1992: Summary report of the IUGG-IAMAP workshop MW5: Climatic effects of atmospheric trace constituents, Vienna, 19-20 August 1991. *Bull. Amer. Meteor. Soc.* **73**, 801-804. <http://www.jstor.org/stable/26229668>.
 52. Wang, W.-C. and Y. Zhang, 1992: Comparison of surface air temperature in China between general circulation model simulations and observations. *J. Chinese Geography*, **3**, 58-82.
 53. Zhang, Y. and W.-C. Wang, 1992: Air temperature field near the ground in mid-Holocene in China. (Eds.) Y. Zhang and P.-Y. Zhang, Meteorological Publ., Beijing, pp. 57-73. (in Chinese with English abstract.)
 54. Zhang, Y. and W.-C. Wang, 1992: The potential change of surface air temperature under the condition of global warming induced by CO₂ doubling. (Eds.) Y. Zhang and P.-Y. Zhang, Meteorological Publ., Beijing, pp. 228-237. (in Chinese with English abstract.)
 55. Wang, W.-C. and Y. Zhang, 1992: The potential change of precipitation of China under the condition of global warming induced by CO₂ doubling. (Eds.) Y. Zhang and P.-Y. Zhang, Meteorological Publ., Beijing, pp. 238-246. (in Chinese with English abstract.)
- 1993:**
56. Wang, W.-C. and Q. Ge, 1993: Greenhouse effect's impact on China's social and economic development. *Science and Technology Review*, No. 57, 59-63. (in Chinese)
 57. Li, W., W. Cong, and W.-C. Wang, 1993: The formation and the development of CAMS two-dimensional dynamical-physical climate model. *Acta Met. Sinica*, **7**, 129-146.
 58. Wang, W.-C., Q.-Y. Zhang, D. Easterling, and T. Karl, 1993: Beijing cloudiness since 1875. *J. Climate*, **6**, 1921-1927.
 59. Ko, M. K. W., N. D. Sze, W.-C. Wang, G., Shia, A. Goldman, F. J. Murcray, D. G. Murcray, and C. P. Rinsland, 1993: Atmospheric sulfur hexafluoride: Sources, sinks and greenhouse warming. *J. Geophys. Res.*, **98**, 10499-10507.
 60. Wang, W.-C., Y. Zhuang, and R. Bojkov, 1993: Climate implications of observed changes in ozone vertical distributions at middle and high latitudes of the Northern Hemisphere. *Geophys. Res. Lett.*, **20**, 1567-1570, [doi:10.1029/93GL01318](https://doi.org/10.1029/93GL01318).
 61. Mohnen, V. A., W. Goldstein, and W.-C. Wang, 1993: Tropospheric ozone and climate change. *J. Air & Waste Management Association*, **43**, 2-14.
 62. Cess, R. D. (with 29 authors), 1993: Uncertainties in carbon dioxide radiative forcing in atmospheric general circulation models. *Science*, **262**, 1252-1255.

63. Bradley, R. S., D. Sheu, and W.-C. Wang, 1993: High resolution paleoclimatic records from monsoon Asia. EOS, 74, 601-604, doi:10.1029/93EO00500.
- 1994:**
64. Wang, W.-C., X.-Z. Liang, and M. P. Dudek, 1994: Effect of global warming on the regional climate in China. 19-29. In Climate-Biosphere Interactions: Biogenic Emissions and Environmental Effects of Climate Change. (Ed.) Richard G. Zepp, John Wiley & Sons, Wiley-Interscience.
 65. Wang, S.-W. and W.-C. Wang, 1994: Application of historical documentary records in reconstruction of the Paleo-climate series in China. Terr., Atmos. and Ocean. Sci., 5, 373-381, Taiwan.
 66. Wang, W.-C. and I. S. A. Isaksen, 1994: A report on workshops: GCM study of climate-chemistry interaction. Bull. Amer. Meteor. Soc., 75, 1671-1675.
 67. Gong, W., X. Zhou, and W.-C. Wang, 1994: A diagnostic study of feedback mechanism in greenhouse effects simulated by NCAR CCM1. ACTA. Meteor. Sinica, 8, 270-282.
- 1995:**
68. Mohnen, V., W. Goldstein, and W.-C. Wang, 1995: The potential role of tropospheric ozone as a climate gas. Bull. World Meteor. Organization, 44, 38-42.
 69. Wang, W.-C., M. P. Dudek, and X.-Z. Liang, 1995: chapter 9: The greenhouse effect of trace gases. 317-346, in Future climates of the World, (Ed.) A. Henderson-Sellers, Elsevier Science Publ. Number 16 of the World Survey of Climatology.
 70. Wang, W.-C., X.-Z. Liang, M. P. Dudek, D. Pollard and S. L. Thompson, 1995: Atmospheric ozone as a climate gas. Atmos. Res., 37, 247-256.
 71. Liang, X.-Z., W.-C. Wang and M. P. Dudek, 1995: Interannual variability of regional climate and its change due to the greenhouse effect. Global and Planetary Change, 10, 217-238.
 72. Liang, X.-Z., A. N. Samel, and W.-C. Wang, 1995: Observed and GCM simulated decadal variability of monsoon rainfall in east China. Clim. Dyn., 11, 103-114.
 73. Samel, A. N., S.-W. Wang, and W.-C. Wang, 1995: A comparison between observed and GCM simulated summer monsoon characteristics over China. J. Climate, 8, 1690-1696.
 74. Liang, X.-Z. and W.-C. Wang, 1995: A GCM study of the climatic effect of observed 1979-1992 ozone trend. in Atmospheric Ozone as A Climate Gas, (Eds) W.-C. Wang and I. S. A. Isaksen, 259-288, NATO ASI Series, Springer-Verlag, Berlin.
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