

## **Ning ZHANG**

Professor, School of Atmospheric Sciences, Nanjing University, China

**Mailing Address: School of Atmospheric Sciences, Nanjing University, 163 Xianlin Avenue, Nanjing, 210023, China**

**Work Phone: 86-25-89681163**

**E-mail: ningzhang@nju.edu.cn**

Ning ZHANG is Professor at School of Atmospheric Sciences, Nanjing University, China. He completed his undergraduate degree, graduate degree (MS and Ph D) at School of Atmospheric Sciences, Nanjing University. He worked at Zhejiang Institute of Meteorological Sciences as an applied meteorology engineer and a postdoctoral researcher at Jackson State University, MS, USA. His research interests are in areas of probing and numerical modelling of atmospheric boundary layer meteorology, urban air quality and urban meteorology/climate. He has developed numerical models for urban micro-scale climate/pollutant dispersion simulations based on different skills (e.g., empirical methods, large eddy simulation and Reynolds-averaged method). He is also a major contributor to the urban surface canopy model developed in Nanjing University. He is working on the parameterizations of urban processes in climate and weather forecasting numerical models. His researching aims at an in-depth understanding of the physical processes related to urban meteorology/climate, urban atmospheric environment and micro-scale climate.

### **Education**

September, 2001-June, 2004 Nanjing University  
Ph D of atmospheric sciences, urban meteorology  
Thesis Topic: Large eddy simulations of urban buildings  
environment.

September, 1998-June, 2001 Nanjing University  
MS of atmospheric sciences, atmospheric physics  
Thesis Topic: Numerical simulations of building  
environment.

September, 1994-June, 1998 Nanjing University  
Undergraduate of atmospheric sciences

### **Work Experience**

- July, 2007-current      Employer: Nanjing University,  
 Location: Nanjing, China  
 Title: Associate Professor, Professor (since January, 2014)  
 Duties: Teaching and researching on atmospheric physics  
 and urban meteorology
- March, 2005-January, 2007    Employer: Jackson State University  
 Location: Jackson, MS, USA  
 Title: Postdoctoral researcher  
 Duties: Researching on applied meteorology
- August, 2004-March, 2005    Employer: Zhejiang institute of meteorological science  
 Location: Hangzhou, China  
 Title: Engineer  
 Duties: Researching on applied meteorology

### **Academic Awards**

Second-level Prize for Natural Science Achievement of the Ministry of Education, China (2003) (third contributor)-- Development and Application of a Boundary Layer Numerical Simulation System with different Turbulence Closure Schemes

Second-level Prize for Natural Science Achievement of the Ministry of Education, China (2016) (second contributor)-- Meteorological and Environmental Impacts of Typical Urbanization Processes and the Mechanisms

### **Publications**

1. Chen, Yan, and Ning Zhang. 2018. 'Urban Heat Island Mitigation Effectiveness under Extreme Heat Conditions in the Suzhou–Wuxi–Changzhou Metropolitan Area, China', *Journal of Applied Meteorology and Climatology*, 57: 235-53.
2. Zhang, Ning, Yan Chen, Ling Luo, and Yongwei Wang. 2017. 'Effectiveness of Different Urban Heat Island Mitigation Methods and Their Regional Impacts', *Journal of Hydrometeorology*, 18: 2991-3012.
3. Kong, F., W. Yan, G. Zheng, H. Yin, G. Cavan, W. Zhan, N. Zhang, and L. Cheng (2016), Retrieval of three-dimensional tree canopy and shade using terrestrial laser scanning (TLS) data to analyze the cooling effect of vegetation, *Agricultural and Forest Meteorology*, 217, 22-34,  
 doi:<http://dx.doi.org/10.1016/j.agrformet.2015.11.005>.
4. Ning ZHANG, Y. D., Shiguang MIAO (2016). "A Microscale Model for Air Pollutant Dispersion Simulation in Urban Areas: Presentation of the Model and Performance over a Single Building." *Adv. Atmos. Sci.* 33(2): 184-192.

5. Zhang, N., Y. Du, S. Miao and X. Fang (2016). "Evaluation of a micro-scale wind model's performance over realistic building clusters using wind tunnel experiments." *Advances in Atmospheric Sciences* 33(8): 969-978.
6. Zhang, N., X. Wang, Y. Chen, W. Dai and X. Wang (2016). "Numerical simulations on influence of urban land cover expansion and anthropogenic heat release on urban meteorological environment in Pearl River Delta." *Theoretical and Applied Climatology* 126(3): 469-479
7. Song, Y., H. Liu, X. Wang, N. Zhang, and J. Sun (2016), Numerical simulation of the impact of urban non-uniformity on precipitation, *Advances in Atmospheric Sciences*, 33(6), 783-793
8. Zhang,N.,Z.Gao,Y.Liu,and D.Li(2015), "Sensitivity of a global climate model to the critical Richardson number in the boundary layer parameterization", *J. Geophys. Res. Atmos.*, 120, 3310–3328, doi:10.1002/2014JD022015
9. Zhang, N. and Y. Chen (2014). "A Case Study of the Upwind Urbanization Influence on the Urban Heat Island Effects along the Suzhou–Wuxi Corridor." *Journal of Applied Meteorology and Climatology* 53(2): 333-345.
10. Zhang, N., X. Wang and Z. Peng (2014). "Large-Eddy Simulation of Mesoscale Circulations Forced by Inhomogeneous Urban Heat Island." *Boundary-Layer Meteorology* 151(1): 179-194.
11. Zhao, W., N. Zhang, J. Sun and J. Zou (2014). "Evaluation and Parameter-Sensitivity Study of a Single-Layer Urban Canopy Model (SLUCM) with Measurements in Nanjing, China." *Journal of Hydrometeorology* 15(3): 1078-1090.
12. Zhao, W., N. Zhang and J. Sun (2014). "Spatiotemporal variations of cloud amount over the Yangtze River Delta, China." *Journal of Meteorological Research* 28(3): 371-380.
13. Zhang, Y., Z. Gao, D. Li, Y. Li, N. Zhang, X. Zhao and J. Chen (2014). "On the computation of planetary boundary-layer height using the bulk Richardson number method." *GEOSCIENTIFIC MODEL DEVELOPMENT*. 7(6): 2599-2611.
14. ZHANG Ning, CHEN Yan and ZHAO Wenjing (2012). Lidar and microwave radiometer observations of planetary boundary layer structure under light wind weather. *Journal of Applied Remote Sensing* 6(1), doi:10.1117/1.JRS.6.063513
15. ZHANG Ning, ZHU Lianfang and ZHU Yan,(2011),Urban heat island and boundary layer structures under hot weather synoptic conditions: A case study of Suzhou City, China ,*Advances in Atmospheric Sciences*, Volume 28, Number 4, 855-865, DOI: 10.1007/s00376-010-0040-1
16. ZHANG Li, LIU, Hongnian, ZHANG Ning, (2011), Impacts of internally and externally mixed anthropogenic sulfate and carbonaceous aerosols on East Asian climate, *Acta Meteorologica Sinica*, 2011, Volume 25, Number 5, Page 639
17. C.S.B. Grimmond, M. Blackett, M.J. Best and J. Barlow et al. and ZHANG Ning, (2010).Initial results from Phase 2 of the international urban energy balance model comparison, *INTERNATIONAL JOURNAL OF CLIMATOLOGY*,DOI: 10.1002/joc.2227
18. Lei LI, Li-Jie ZHANG, Ning ZHANG, Fei Hu, Yin Jiang, Chun-Yi Xuan and Wei-Mei Jiang, (2010),Study on the micro-scale simulation of wind field over complex

- terrain by RAMS/FLUENT modeling system. *Wind and Structures* Vol. 13 No. 6, 519-528
19. ZHANG Ning, Gao Zhiqiu, Wang Xuemei and Chen Yan, (2010). Modeling the impact of urbanization on the local and regional climate in Yangtze River Delta, China, *Theoretical and Applied Climatology* 102(3-4):331-342.
  20. ZHANG Ning, Quinton L. Williams, and Heping Liu, (2010). Effects of Land-Surface Heterogeneity on Numerical Simulations of Mesoscale Atmospheric Boundary Layer Processes, *Theoretical and Applied Climatology*, 102(3-4):307-317, DOI 10.1007/s00704-010-0268-9.
  21. C.S.B. Grimmond, M. Blackett, M.J. Best and J. Barlow et al. and ZHANG Ning, (2010). The International Urban Energy Balance Models Comparison Project: First results from Phase 1, *Journal of Applied Meteorology and Climatology* Vol.49:1268-1292
  22. ZHANG Ning, W. M. Jiang, Zhiqiu Gao, Fie HU and Zhen PENG., (2009). Determination of Urban Surface Aerodynamic Characteristics Using Marquardt Method, *Wind and Structures* 12(3): 281-283.
  23. Chen, Y., W. M. Jiang, ZHANG Ning, He Xiaofeng and Zhou Rongwei, (2009). Numerical simulation of the anthropogenic heat effect on urban boundary layer structure, *Theoretical and Applied Climatology* 97(1): 123-134.
  24. Zhang Ning, Jiang Weimei and Chen Yan, 2008, A Numerical Study of Urban Canopy Processes Influence on Local Climate, *iCBBE: Environmental Pollution and Public Health (EPPH2008)*, May 16-18, Shanghai, China.
  25. Zhang Ning and Jiang Weimei, 2006, A Large Eddy Simulation on the Effect of Buildings on Atmospheric Pollutant Dispersion, *Chinese Atmospheric Science*, Vol.30, 361-371
  26. Zhang Ning, Jiang Weimei, Miao Shiguang.,2006, A Large Eddy Simulation on the Effect of Buildings on Urban Flows, *Wind and Structure*, Vol.9,23-36
  27. Zhang Ning, Jiang Weimei, Hu Fei, 2004, Numerical Method Study of How Buildings Affect the Flow Characteristics of an Urban Canopy, *Wind and Structures*, Vol.7 ,159-172
  28. Fang Xiaoyi, Jiang Weimei, Miao Shiguang, Zhang Ning, Xu,M.,et al, 2004, The Multi-Scale Numerical Modeling System for Research on the Relationship between Urban Planning and Meteorological Environment,*Advances in Atmospheric Sciences*, Vol.21,103-112