

# Zhiqiang Gao

## Resume

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### Education

- **Ph.D.** in Cartography and Geographical Information System, Institute of Remote Sensing Applications, Chinese Academy of Sciences, China, 1996-1998
- **M.S.** in Cartography and Remote Sensing, Xinjiang Institute of Ecology and Geography, Chinese Academy of Sciences, China, 1990-1993
- **B.S.** in Natural Geography, Department of Geography, Shandong Normal University, China, 1985-1989

### Research Interests

- Applications of remote sensing and geographical information system
- Eco-model designed and application
- Coupling of UVB data and satellite data(TOMS , GOME, MODIS)
- Land use / Land cover
- Retrieved land surface flux parameters from Remote Sensing data (MODIS/ETM/TM)

### Employment

- 2002-present: Institute of Remote Sensing Applications, Chinese Academy of Sciences, China, Associate Research Professor. Short term scholar research of UVB Programs of CSU
- 2000-2002: Natural Resource Ecology Laboratory, Colorado State University, Colorado, USA, Post Doc. Researcher
- 1998-2000: State Key Lab of Resource and Environment Information System, Chinese Academy of Sciences, China, Post Doc. Researcher

### Experience

- I have studied and worked in the Chinese Academy of Science for 19 years. My research field includes applications of remote sensing, geographical information systems, land use/land cover cartography, ecosystem modeling, impacts of UV-B on crops using an eco-model, and applications for coupling of field (in-situ) UV-B data and TOMS satellite data.
- As a visiting short-term scholar/researcher, my work includes UV-B data in the eco-model, and I have written several papers about NPP and UV-B. For several months each year I have processed UV-B data, studied impacts of UV-B on crops and ecosystems, and improved the coupling of in-situ UV-B data and TOMS satellite data.

- I continue to process the data for various parameters of CWRP (a regional Climate-Weather Research and Forecasting model) for the USA to simulate the impacts of UV-B and climate on crops.
- I have refined the GeoPro model (eco-model) code to simulate the impact of UV-B on ecosystems and used remote sensing models to retrieve land surface flux to validate the GeoPro model. I have downloaded and processed TOMS satellite data from 1978 to 2006 for analyzing the relationship between UV-B ground data and satellite data.
- My future research will include applications using the coupling of TOMS and in-situ UV-B data, simulation modeling for impacts of UVB on crops, and coupling of remote sensing data with the eco-model to study ecosystems under impacts of UV-B.

## Publications

- **Zhiqiang Gao**, Wei Gao, and Ni-Bin Chang. 2009. Correlation Analyses of Ultraviolet-B and Total Ozone over the Continental US with TOMS Data and Ground-based Measurements .Journal of Geographical Research. (submitted )
- Wei Gao, **Zhiqiang Gao**, and Ni-Bin Chang. 2009. Comparative Analysis of UVB between Nimbus 7/TOMS Satellite Estimates and Ground-based Measurements. (book) ( publishing)
- **GAO ZhiQiang**, LIU JiYuan. Simulation study of China's net primary production. Chinese Science Bulletin, 2008, 53 (3) , 11-21.
- **GAO Zhiqiang**, LIU Jiyuan, CAO Mingkui, LI Kerang & TAO Bo. 2005. Impacts of land-use and climate changes on ecosystem productivity and carbon cycle in the cropping-grazing transitional zone in China. Science in China Ser. D Earth Sciences 2005 Vol.48 No.9 1479-1491
- **Zhiqiang Gao**, Wei Gao, Jie Zhang. The Study of Urban Sprawl and Simulation Based on Remote Sensing and CLUS model . Proceedings of SPIE 2007.
- Zhou Xiaoyan, **Gao Zhiqiang**. Landscape Pattern Change analyses of land surface radiation during the city expansion in Jinan City . Proceedings of SPIE 2007.
- Zhang Fuxing, **Gao Zhiqiang**, Zuo Lijun . Study on relationship of soil moisture and land cover : a case in Lijin County, Shandong Province . Proceedings of SPIE 2007.
- Zhang Wenjiang, **Gao Zhiqiang**. Analyzing the relationship between land surface temperature and vegetation cover: a case of typical grassland in North China . Proceedings of SPIE 2007.
- Ning Jicai, **Gao Zhiqiang**, Zhang Zulu, Li Zijun . Influence of land use/cover change on land surface temperature of Laizhou Bay plain . Proceedings of SPIE 2007.
- Shi Jun, **Zhiqiang Gao** and Cui Linli. 2006. Net primary production and its change in Chinese plantation. Remote Sensing and Modeling of Ecosystems for Sustainability III, edited by Wei Gao, Susan L. Ustin, Proc. of SPIE: V6298(62981K). (10.1117/12.77345)
- Wenjiang Zhang and **Zhiqiang Gao**. 2006. Scaling characteristics of remotely-sensed surface net radiance over densely-vegetated grassland in Northern China. Remote Sensing and Modeling of Ecosystems for Sustainability III, edited by Wei Gao, Susan L. Ustin, Proc. of SPIE: V6298(629810). (10.1117/12.675930)

- **Zhiqiang Gao**, Wei Gao and James Slusser. 2006. The LUCC Responses to Climatic changes in China in the last 20 years. *Remote Sensing and Modeling of Ecosystems for Sustainability III*, edited by Wei Gao, Susan L. Ustin, Proc. of SPIE: V6298(629818). (10.1117/12.676236)
- **Zhiqiang Gao**, Wei Gao, etc., 2005. The response of leaf area index to climate change during 1981-2000 in China, *Remote Sensing and Modeling of Ecosystems for Sustainability II*, *Proceedings of SPIE*, Vol. 5884 (SPIE, Bellingham, WA, 2005) OS-1-OS-4.
- Wei Gao, **Z.Q. Gao**, etc., 2005. The impact of precipitation and temperature on net primary productivity (NPP) in Xinjiang from 1981-2000. In: *Earth Science Satellite Remote Sensing II*, J. Qu, W. Gao, M. Kafatos, R. Murphy, and V. Salomonson (eds), Springer-Verlag and Tsinghua University Press.
- **Zhiqiang Gao**, Wei Gao, etc., 2005. The response of leaf area index to climate change during 1981-2000 in China, *Remote Sensing and Modeling of Ecosystems for Sustainability II*, *Proceedings of SPIE*, Vol. 5884 (SPIE, Bellingham, WA, 2005) OS-1-OS-4.
- **Zhiqiang Gao**, Jiyuan Liu, Mingkui Cao, etc., 2005. Impacts of land-use and climate changes on ecosystem productivity and carbon cycle in the cropping-grazing transitional zone in China, *Science in China, Series D-Earth Sciences*, 48(9).
- Jiyuan Liu, Xinliang Xu, Dafang Zhuang, and **Zhiqiang Gao**, 2005. Impacts of LUCC processes on potential land productivity in China in the 1990s, *Science in China, Series D-Earth Sciences*, 48(8): 1259-1269.
- Jiyuan Lin, Xinliang Xu, **Zhiqiang Gao**, Dafang Zhuang, 2004. Recent land use change and its impact on farmland productivity in China, *Remote Sensing and Modeling of Ecosystems for Sustainability*, *Proceedings of SPIE*, Vol. 5544 (SPIE, Bellingham, WA, 2004), 5544, 295-300.
- Wei Gao, **Zhiqiang Gao**, X. Pan, J. Slusser, J. Qi, X. Zhan, Y. Ma, 2004. Impacts of seasonal climate on net primary productivity (NPP) in Xinjiang, 1981-2000, In: *Remote Sensing and Modeling of Ecosystems for Sustainability*, 543-552, SPIE, Bellingham, WA, USA.
- **Zhiqiang Gao** and Jiyuan Liu, 2004. Impacts of land use and climate change on regional net primary productivity, *Journal of Geographic Sciences*, 14: 349-358.
- **Zhiqiang Gao** etc., 2004. Analysis on impact of climate changes over the past twenty years on NPP in China, *Remote Sensing and Modeling of Ecosystems for Sustainability*, *Proceedings of SPIE*, Vol. 5544 (SPIE, Bellingham, WA, 2004), 553-560.
- Wei Gao, **Zhiqiang Gao**, etc., 2004. Responses of net primary productivity (NPP) in Xinjiang to climatic changes from 1981-2000, *Ecosystems Dynamics, Agricultural Remote Sensing and Modeling, and Site-Specific Agriculture*, *Proceedings of SPIE*, Vol. 5153 (SPIE, Bellingham, WA, 2004), 5153. 73-84.
- **Zhiqiang Gao**, Wei Gao, J.R. Slusser, X. Pan, and Y. Ma, 2003. The sensitivity of NPP to climate controls in northern China estimated by CLM model coupled with RS and GIS technology, In: *Proceedings of SPIE Vol. 4890, Ecosystems Dynamics, Ecosystem Society Interactions, and Remote Sensing Application for Semi-arid and Arid Land*, (SPIE, Bellingham, WA, 2003), pp. 299-305.
- Wei Gao, **Zhiqiang Gao**, J.R. Slusser, X. Pan, and Y. Ma., 2003. The responses of net primary productivity (NPP) to different climate scenarios with BiomeBGC model in oasis areas along the Tianshan mountains in Xinjiang, China, In: *Proceedings of SPIE Vol. 4890, Ecosystems Dynamics, Ecosystem Society*

- Interactions, and Remote Sensign Application for Semi-arid and Arid Land, (SPIE, Bellingham, WA, 2003), pp. 141-150.
- D. Ojima, **Zhiqiang Gao**, J. Liu, M. Kneeland, T. Chuluun, 2003. Land cover analysis along semi-arid transects in Asia, In: Proceedings of SPIE Vol. 4890, Ecosystems Dynamics, Ecosystem Society Interactions, and Remote Sensign Application for Semi-arid and Arid Land, (SPIE, Bellingham, WA, 2003), pp. 575-586.
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  - **Zhiqiang Gao**, Jiyuan Liu, 2001. The analysis of land-use/land-cover changes and causes in Liaozhong and Zhangwu counties, 2001, 3.
  - **Zhiqiang Gao**, Dennis Ojima, 2001. The temporal and spatial relational analysis between NDVI and climatological parameters in Colorado, *Journal of Geographical Sciences*, 11(4).
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