BOWEN ZHANG

Department of Environment, Geology, and Natural Resources
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EDUCATION

Auburn University, USA — School of Forestry & Wildlife Science — Ph.D. 2016

Dissertation: *Methane Exchanges between Terrestrial Ecosystems and the Atmosphere in Response to Multiple Environmental Changes -A Process-Based Modeling Study*, Major professor: Dr. Hanqin Tian

Northwest A&F University, China — College of Resources and Environment — M.S. 2010

Thesis: *Experiment on crude oil infiltration into soils*

Northwest A&F University, China — College of Resources and Environment — B.S. 2007

RESEARCH INTERESTS

My research interests lie in understanding of the biogeochemical and hydrological cycle within the terrestrial ecosystem, and the exchange of greenhouse gases across the land-atmosphere interface and riverine fluxes across land-ocean interface. I am particularly interested in carbon and nitrogen cycle in response to multiple global changes, including climate, land use and land management practices, and atmospheric composition, in terrestrial ecosystems by using a systems approach, ecosystem modeling, and data-model assimilation at various spatial and temporal scales. My current study mainly focuses on

- Land-atmosphere exchange of greenhouse gases (CO_2, CH_4 and N_2O);
- Coupled carbon, nitrogen and water cycles in the earth system;
- Land-coastal linkage and riverine export of carbon and nutrient;
- Assessment of the dynamics of ecosystem function and services in response to multiple global changes in climate, land use and cover patterns, land management practices, and atmospheric composition (e.g., CO_2, O_3, nitrogen deposition).

HONOR AND AWARD

Goggans' Graduate Award in Forest Biology, Auburn University — 2016

Graduate Travel Fellowships, Auburn University — 2014

RESEARCH EXPERIENCES

Assistant Professor

Department of Environment, Geology, and Natural Resources,

Ball State University, IN 2018-present

Postdoctoral Fellow

School of Forestry & Wildlife Science, Auburn University, AL 2016-2018

Research Assistant

School of Forestry & Wildlife Science, Auburn University, AL 2011-2016

Department of Agronomy & Soils, Auburn University, AL 2010-2011

The State Key Laboratory of Soil Erosion & Dryland Farming on Loess Plateau,

Northwest A&F University, China 2007-2010

EXPERTISE

Background in Related Ecology Science

Practical and theoretical experience in Ecosystem Modeling, Ecosystem Ecology, Global Change Ecology, Air Resources, Plant Physiology, Soil, Biogeochemistry, Biochemistry, Biology, etc.

Research Skills

Synthesis: Meta-analysis, Metawin software

Computer skills: C++ programing

Spatial and Statistical analysis: GIS, AML, NCL, R programing

Field Experiments & Analytical Skills: Designing and conducting field experiments, soil sampling, estimation of basic soil properties, plant available nutrients (nitrogen, phosphorus, and micronutrients), and biological properties (microbial biomass carbon, soil respiration).

TEACHING EXPERIENCE

Instructor:

NREM 101 Environment and Society,

Department of Environment, Geology, and Natural Resources, Ball State University (2018-2019)

NREM 241 Air Resources,

Department of Environment, Geology, and Natural Resources, Ball State University (2018-2019)

NREM 299 GIS Application,

Department of Environment, Geology, and Natural Resources, Ball State University (Spring 2019)

Teaching Assistant:

FORY 3180 Forest Measurement, School of Forestry and Wildlife Sciences, Auburn University (Fall 2014)

Guest lecturer

FORY 7970 (Spring 2012) Advanced Ecosystem Modeling
- *Nitrogen cycling processes in the Dynamic Land Ecosystem Model (DLEM)*

FORY 7950 (Spring 2013) Seminar
- *Uncertainty analysis of methane flux in terrestrial ecosystems of North America*

FORY 7930 Frontier in Global Change Ecology (Spring 2013)
- *Overview of carbon allocation*
- *Overview of methane fluxes*

CIVL 7280 Surface Water Quality Modeling (Fall 2014)
- *Methane Dynamics in Lake Ecosystems*

PARTICPATED RESEARCH PROJECTS

•"Global Manure Phosphorus Production during 1960–2016: a 5-arcminute Gridded Global Dataset for Earth System Modeling (GMPP)", supported by Digital Scholarship Lab Fellowship at the Ball State University, Project period: 2019-2020, Total amount: $7,895, with an additional amount of $3200 used to hire student assistant through DSL (Principle Investigator).

• "Synergistic impacts of population growth, urbanization, and climate change on watershed and coastal ecology of the northeastern United States" (with PI Paymond Najjar at Pennsylvania State University), supported by NASA Interdisciplinary Research in Earth Science program. Project period: 2013-2016, Total Amount: $1,401,697. (Participated as a land ecosystem modeler)

• "Development of observational products and coupled models of land-ocean-atmospheric fluxes in the Mississippi River watershed and Gulf of Mexico in support of carbon monitoring", (With PI Steven E. Lohrenz at University Of Massachusetts, Dartmouth), supported by NASA Carbon Monitoring System Program, Project Period: 2012-2014, Total amount: $404,026. (participated as a land ecosystem modeler)

• "Use of SMAP Seasonal Inundation and Soil Moisture Estimates in the Quantification of Global Biogenic Gas Fluxes" (with PI John Galantowicz at Atmospheric and Environmental Research), Supported by NASA Terrestrial Ecology Program. Project Period: 2010-2013, Total Amount: $75,000. (participated as an ecological modeler)

PROFESSIONAL SERVICE AND MEMBERSHIP

National Service

• Member, North American Carbon Program (NACP) modeling working group (2013 to present)

• Member, Wetland and Wetland CH_4 Intercomparison of Models Project (WETCHIMP), modeling working group (2013 to present)

• Member, Global and regional N_2O model Inter-comparison Project (NMIP), dataset development and modeling working group (2016 to present)

Scientific Conference Organization

Designated by the Biogeosciences (B) Program Committee as the Outstanding Student Paper Award (OSPA) Liaison for the session(s) - B11E, *American Geophysical Union Fall Meeting*, San Francisco, CA, December 2016

Journal Reviewer for Atmospheric Environment; Biogeosciences; Ecosystem health and sustainability; Environmental Research Letter; Geoderma; Global Biogeochemical Cycle; Global Change Biology; Global Environmental Change; Journal of Advances in Modeling Earth Systems; Journal of Forestry Research; Plos one; Science of the Total Environment; Soil Biology and Biochemistry; Theoretical and Applied Climatology

Member:

• American Geophysical Union (AGU) (2013 to present)

• Ecological Society of America (ESA) (2015 to present)

PEER-REVIEW PUBLICATIONS (Citation:1144, h-index:16)

2019

1. Lu C Q, Tian H Q, Zhang J, Yu Z, Pan S F, Dangal S, **Zhang B W**, Yang J, Pederson N, Hessl A. 2019. Severe long-lasting drought accelerated carbon depletion in the Mongolian Plateau. *Geophysical Research Letter*. https://doi.org/10.1029/2018GL081418
2. Xu R T, Tian H Q, Pan S F, Dangal S R, Chen J, Chang J F, Lu Y L, Skiba U M, Tubillo F N, **Zhang B W**. 2019. Increased nitrogen enrichment and shifted patterns in the world's grassland:1860-2016. *Earth Syst. Sci. Data*, 11 (1), 175-187
3. Dangal S R, Tian H Q, Xu R T, Chang J F, Canadell J G, Ciais P, Pan S F, Yang J, **Zhang B W**. 2019. Global nitrous oxide emissions from pasturelands and rangelands: Magnitude, spatio-temporal patterns and attribution. *Global Biogeochemical Cycle.* https://doi.org/10.1029/2018GB006091
4. Xue J, Schmitz B, Caton K, **Zhang B W**, Zabaleta J, Garai J, Taylor C M, Romanchishina, T, Gerba C P, PepperI, Sherchan S P. 2019. Assessing the spatial and temporal variability of bacterial communities in two Bardenpho wastewater treatment systems via Illumina MiSeq sequencing. *Science of the Total Environment*, 657, 1543-1552

2018

5. Yang J, Tian H Q, Pan S F, Chen G S, **Zhang B W**, Dangal S R. 2018. Amazon droughts and forest responses: Largely reduced forest photosynthesis but slightly increased canopy greenness during the extreme drought of 2015/2016. *Global Change Biology.* DOI: 10.1111/gcb.14056
6. Tian H Q, Yang J, Lu C Q, Xu R T, Canadell J G, Jackson R, Arneth A, Chang J F, Chen G S, Ciais P, Gerber S, Ito A, Huang Y Y, Joos F, Lienert S, Messina P, Olin S, Pan S F, Peng C H, Saikawa E, Thompson R L, Vuichard N, Winiwarter W, Zaehle S, **Zhang B W**, Zhang K, Zhu Q A. 2018. The global N_2O Model Intercomparison Project (NMIP): Objectives, Simulation Protocol and Expected Products. *Bull. Amer. Meteor. Soc*., 0, https://doi.org/10.1175/BAMS-D-17-0212.1
7. Tian H Q, Yang J, Xu R T, Lu C Q, Canadell J G, Davidson E A, Jackson R B, Arneth A, Chang J F, Ciais P, Gerber S, Ito A, Joos F, Lienert S, Messina P, Olin S, Pan S F, Peng C H, Saikawa E, Thompson R L, Vuichard N, Winiwarter W, Zaehle S, Zhang B W. 2018. Global soil nitrous oxide emissions since the preindustrial era estimated by an ensemble of terrestrial biosphere models: Magnitude, attribution, and uncertainty. *Global Change Biology.* 25(2):640-659

8. Xue J, Lamar F, **Zhang B W**, Lin S Y, Lamori J G, Sherchan S. 2018. Quantitative assessment of Naegleria fowleri and fecal indicator bacteria in brackish water of Lake Pontchartrain, Louisiana. Science of the Total Environment, 622-623, https://doi.org/10.1016/j.scitotenv.2017.11.308

2017

9. **Zhang B W**, Tian H Q, Lu C Q, Chen G S, Pan S F, Anderson C, Poulter B. 2017. Methane emissions from global wetlands: assessing the uncertainty from wetland extent datasets. *Atmospheric Environment*. https://doi.org/10.1016/j.atmosenv.2017.07.001
10. **Zhang B W**, Tian H, Lu C, Dangal S R, Pan S. 2017. Global manure nitrogen production and application in cropland during 1860–2014: a 5 arc-min gridded global dataset for Earth system modeling. *Earth Syst. Sci. Data*, 9, 667-678. https://doi.org/10.5194/essd-9-667-2017

11. Dangal S R, Tian H, **Zhang B W**, Pan S, Lu C, Yang J. 2017. Methane emission from global livestock sector during 1890-2014: magnitude, trends and spatio-temporal patterns. *Global Change Biology*. doi: 10.1111/gcb.13709
12. Yang J, Pan S, Dangal S R, **Zhang B W**, Wang S, Tian H. Continental-scale quantification of post-fire vegetation greenness recovery in temperate and boreal North America. *Remote Sensing of Environment*, 199, 277-290. https://doi.org/10.1016/j.rse.2017.07.022
13. Xu R T, Tian H Q, Lu C Q, Pan S F, Chen J, Yang J, **Zhang B W**. 2017. Preindustrial nitrous oxide emissions from the land biosphere estimated by using a global biogeochemistry model. *Clim. Past*, doi:10.5194/cp-13-977-2017
14. Poulter B, Bousquet P, Canadell J G, Ciais P, Peregon, A, Saunois M, Arora V, Beerling D, Brovkin V, Jones C, Joos F, Gedney N, Ito A, Kleinen T, Koven C, McDonald K, Melton J, Peng C, Peng S, Prigent C, Schroder R, Riley W, Saito M, Spahni R, Tian H Q, Taylor L, Viovy N, Wilton D, Wiltshire A, Xu X Y, **Zhang B W**, Zhu Q, Zhang Z. 2017. Global wetland contribution to 2000-2012 atmospheric methane growth rate dynamics. *Environmental Research Letters*. 12, 094013
15. Saunois M, Bousquet P, Poulter B, Peregon A, Ciais P, Canadell J G, Dlugokencky E J, Etiope G, Bastviken D, Houweling S, Janssens-Maenhout G, Tubiello F N, Castaldi S, Jackson R B, Alexe, M., Arora V K, Beerling D J, Bergamaschi P, Blake D R, Brailsford G, Bruhwiler L, Crevoisier C, Crill P, Covey K , Frankenberg C , Gedney N , Höglund-Isaksson L, Ishizawa M, Ito A, Joos F, Kim H S, Kleinen T, Krummel P, Lamarque J F, Langenfelds R, Locatelli R, Machida T, Maksyutov S, Melton J R, Morino I, Naik V, O'Doherty S, Parmentier F J W, Patra P K, Peng C, Peng S, Peters G P, Pison I, Prinn R, Ramonet M, Riley W J, Saito M, Santini M, Schroeder R, Simpson I J, Spahni R, Takizawa A, Thornton B F, Tian H, Tohjima Y, Viovy N, Voulgarakis A, Weiss R, Wilton D J, Wiltshire A, Worthy D, Wunch D, Xu X, Yoshida Y, **Zhang B W**, Zhang Z, Zhu Q. 2017. Variability and quasi-decadal changes in the methane budget over the period 2000–2012, *Atmos. Chem. Phys*., 17, 11135-11161, https://doi.org/10.5194/acp-17-11135-2017

2016

16. **Zhang B W**, Tian H Q, Ren W, Tao B, Lu C Q, Yang J, Banger K, Pan S F. 2016. Methane emissions from global rice fields: Magnitude, spatiotemporal patterns, and environmental controls. *Global Biogeochemical Cycle*, 30 (9), 1246-1263, doi: 10.1002/2016GB005381
17. Tian H Q, Lu C Q, Ciais P, Michalak A, Canadell J, Saikawa E, Huntzinger D, Gurney K, Sitch S, **Zhang B W**, Yang J, Bousquet P, Bruhwiler L, Chen G S, Dlugokencky E, Fridlingstein P, Melillo J, Pan S F, Poulter B, Prinn R, Saunois M, Schwalm C, Wofsy S. 2016. The terrestrial biosphere as a net source of greenhouse gases to the atmosphere. *Nature*, 531, 225-228, doi: 10.1038/nature16946
18. Saunois M, Bousquet P, Poulter B, Peregon, A, Ciais P, Canadell J G, Dlugokencky E J, Etiope G, Bastviken D, Houweling S, Janssens-Maenhout G, Tubiello F, Castaldi S, Jackson R B, Alexe M, Arora V, Beerling D, Bergamaschi P, Blake D R, Brailsford G, Brovkin V, Bruhwiler L, Crill P, Curry C, Frankenberg C, Gedney N, Höglund-Isaksson L, Ishizawa M, Ito A, Joos F, Kim H, Kleinen T, Krummel P, Lamarque J, Langenfelds R, Machida T, Maksyutov S, McDonald K C, Marshall J, Melton J R, Morino I, O'Doherty S, Parmentier F, Patra P, Peng C H, Peng S S, Peters G, Pison I, Prigent C, Prinn R, Ramonet M, Riley W J, Saito M, Schroder R, Simpson I J, Spahni R, Steele P, Takizawa A, Thornton B, Tian H Q, Tohjima Y, Viovy N, Voulgarakis A, van Weele M, van der Werf G, Wilton D J, Wiltshire A, Worthy D, Wunch D B, Xu X Y, Yoshida Y, **Zhang B W**, Zhang Z. The global methane budget: 2000-2012. *Earth System Science Data*, 8, 697-751, doi:10.5194/essd-8-697-2016

19. Yang Q C, Tian H Q, Li X, Ren W, **Zhang B W**, Zhang X S, Wolf J. 2016. Spatiotemporal patterns of livestock manure nutrient production in the conterminous United States from 1930 to 2012. *Science of the Total Environment*, 541, 1592-1602

Before 2015

20. Banger K, Tian H Q, **Zhang B W**, Lu C Q, Ren W, Tao B. 2015. Biosphere–atmosphere exchange of methane in India as influenced by multiple environmental changes during 1901–2010. *Atmospheric Environment*, 119, 192-200
21. Bohn T, Melton J, Ito A, Kleinen T, Spahni R, Stocker D, **Zhang B W**, Zhu X D, Schroeder R, Glagolev M, Maksyutov S, Brovkin V, Chen G S, Denisov S, Eliseev A, Galleo-Sala A, McDonald K, Rawlins M, Riley W, Subin Z, Tian H Q, Zhuang Q L, Kaplan J. 2015. WETCHIMP-WSL: intercomparison of wetland methane emissions models over West Siberia. *Biogeosciences*, 12, 3321-3349
22. Tian H Q, Ren W, Yang J, Tao B, Cai W J, Lohrenz S, Hopkinson C, Liu M, Yang Q C, Lu C Q, **Zhang B W**, Banger K, Pan S F, He R Y, Xue Z. 2015. Climate extremes dominating seasonal and interannual variations in carbon export from the Mississippi River Basin. *Global Biogeochemical Cycles*, 29(9), 1333-1347
23. Tian H Q, Lu C Q, Yang J, Banger K, Huntinzger D N, Schwalm C R, Michalak A M, Cook R, Ciais P, Hayes D, Huang M Y, Ito A, Jain A, Lei H M, Mao J F, Pan S F, Post W M, Peng S S, Poulter B, Ren W, Ricciuto D, Schaefer K, Shi X Y, Tao B, Wang W L, Wei Y X, Yang Q C, **Zhang B W**, Zeng N. 2015. Global Patterns and controls of soil organic carbon dynamics as simulated by multiple terrestrial biosphere models: current status and future directions. *Global Biogeochemical Cycles*, 5, doi: 10.1002/2014GB005021
24. Pan S, Tian H Q, Dangal S, Ouyang Z Y, Lu C Q, Yang J, Tao B, Ren W, Banger K, Yang Q C, **Zhang B W.** 2015. Impacts of climate variability and extremes on global net primary production in the first decade of the 21st century. *Journal of Geographical Sciences*, 25(9), 1027-1044
25. Tian H Q, Chen G S, Lu C Q, Xu X F, Ren W, **Zhang B W**, Banger K, Tao B, Pan S, Liu M, Zhang C, Bruhwiler L, Wofsy S. 2014.Global methane and nitrous oxide emissions from terrestrial ecosystems due to multiple environmental changes. *Ecosystem Health and Sustainability*, 1(1).
26. Pan S F, Tian H Q, Dangal S R S, Zhang C, Yang J, Tao B, Ouyang Z Y, Wang X K, Lu C Q, Ren W, Banger K, Yang Q C, **Zhang B W**, Li X. 2014. Complex spatiotemporal responses of global terrestrial primary production to climate change and increasing atmospheric CO_2 in the 21st century. *PLOS ONE*, 9 (11), e112810.
27. Yang Q C, Tian H Q, Li X, Tao B, Ren W, Chen G S, Lu C Q, Yang J, Pan S F, Banger K, **Zhang B W**. 2014.Controls of land use, climate and atmospheric CO_2 on terrestrial evapotranspiration along the U.S. East Coast. *Ecohydrology*, 9, 1–11, doi: 10.1002/eco.1538.
28. Miller S M, Worthy D E J, Michalak A M, Wofsy S C, Kort E A, Havice T C, Andrews A E, Dlugokeneky E J, Kaplan J O, Levi P J, Tian H Q, **Zhang B W**. 2014. Observational constraints on the distribution, seasonality, and environmental predictors of North American boreal methane emissions. *Global Biogeochemical Cycles*, 28(2):146-160, doi: 10.1002/2013GB004580
29. Tian H Q, Chen G S, Lu C Q, Xu X F, Ren W, Banger K, **Zhang B W**, Tao B, Pan S, Liu M, Zhang C. 2013. Global land-atmosphere exchange of methane and nitrous oxide: magnitude and spatiotemporal patterns. *Biogeosciences Discussion*, 10, 19811-19865, doi:10.5194/bgd-10-19811-2013
30. **Zhang B W**, Shao M A. 2010. Effect of initial soil moisture content on crude oil infiltration into soils. *Transactions of the Chinese Society of Agricultural Engineering*, 26(3), 9-13
31. Shao M A, **Zhang B W**. 2009. Experiment on infiltration of crude oil into soil columns. *Acta Pedologica Sinica*, 46(5), 781-787

DATA PRODUCT

1. **Zhang B W**, Tian H Q, Lu C Q, Dangal S R S, Yang J, Pan S F. 2017. Manure nitrogen production and application in cropland and rangeland during 1860 - 2014: A 5-minute gridded global data set for Earth system modeling. *PANGAEA.* https://doi.org/10.1594/PANGAEA.871980

CONFERENCE PRESENTATIONS

1. **Zhang B W**, Tian H Q. Yao Y Z. Understanding coupled carbon biogeochemical and hydrological processes at the Terrestrial-Aquatic Interfaces in North America. Inland Water Global HydroBioGeoChemistry Workshop, May 24th & 25th, 2018, Colorado University, Boulder, CO (Invited talk).
2. **Zhang B W.** Understanding and quantifying land-atmosphere exchanges of greenhouse gases at multiple scales from site to global. May 2nd, 2018. NREM, Ball State University, Muncie, IN (Invited talk).
3. **Zhang B W**, Tian H Q. Largely Increased Nitrous Oxide Emission from Global Livestock Sector during 1860-2014: A geospatial-temporal analysis. AGU Fall Meeting 2017, New Orleans, LA, USA (Poster Presentation).
4. Tian H Q, **Zhang B W**, Najjar R, Lohrenz S, Friedrichs M, Hopkinson C, Cai W J, Hofmann E, He R Y, Chen G S, Lu C Q, Mannino A, Pan S F, Ren W, Wang Z N, Xu R T, Xue Z, Yang J, Yang Q C, Yao Y Z. Spatiotemporal variability of carbon export from North America to the ocean estimated by using a process-based model. AGU Fall Meeting 2017, New Orleans, LA, USA (Poster Presentation).
5. Dangal S R S, Tian H Q, Xu R T, Yang J, **Zhang B W**, Pan S F, Chang J F, Philippe C, Canadell J. Nitrous oxide emissions from grassland ecosystems: Magnitude, spatio-temporal patterns and attribution. AGU Fall Meeting 2017, New Orleans, LA, USA (Poster Presentation).
6. Tian H Q, Yang J, **Zhang B W**, Pan S F, Xu R T, Wang Z N, Yao Y Z, Chen G S, Ren W, Tao B, Lu C Q, Cai W J, Huang W, He R Y, Xue Z, Lohrenz S. Quantifying and predicting historical and future patterns of carbon and nitrogen fluxes from Mississippi river basin to Gulf of Mexico during 1700-2100. NACP2017 (Poster Presentation).
7. **Zhang B W**, Tian H Q, Yao Y Z, Yang J, Wang Z N. **I**ndirect nitrous oxide emissions from major rivers in the world: Integration of a process-based model with observational data. AGU Fall Meeting 2016, San Francisco, CA, USA (Invited Oral Presentation).
8. **Zhang B W**, Tian H Q, Lu C Q, Yang J. Net exchange of CH4 fluxes between terrestrial ecosystem and atmosphere in the Arctic-Boreal region under future climate change scenarios. This is research, Auburn University 2016 (Poster Presentation).
9. Yan F Q, Zhang S W, Chang L P, **Zhang B W**, Tian H Q. History of land use in Sanjiang Plain during 1954-2013: Large-scale land transformations reconstructed from satellite data. ESA 2016 (Invited Oral Presentation).
10. **Zhang B W**, Tian H Q, Yang J. Optimizing water management practices for sustaining rice production and mitigating greenhouse gas emissions in Asia: The food-water-climate nexus approach. AGU Fall Meeting 2015 (Poster Presentation).
11. Xu R T, Tian H Q, Lu C Q, **Zhang B W**, Pan S F, Yang J. Estimation of pre-industrial nitrous oxide emission from the terrestrial biosphere. AGU Fall Meeting 2015 (Poster Presentation).
12. **Zhang B W**, Tian H Q, Lu C Q, Yang J. Net exchange of CH4 fluxes between terrestrial ecosystem and atmosphere in the Arctic-Boreal region under future climate change scenarios. ESA 2015 (Poster Presentation).

13. Tian H Q, **Zhang B W**, Lu C Q, Yang J, Pan S F. Net exchange of CO2, CH4 and N2O between the terrestrial ecosystems and the atmosphere in boreal and arctic region. NACP 2015 (Poster Presentation).
14. **Zhang B W**, Tian H Q, Lu C Q, Yang J, Banger K and Pan S F. Net exchanges of CO2, CH4 and N2O between the terrestrial ecosystems and the atmosphere in boreal and arctic region: Towards a full greenhouse gas budget. AGU Fall Meeting 2014, San Francisco, CA, USA (Invited Oral Presentation).
15. Lu C Q, Tian H Q, **Zhang B W** and Banger K. Natural and Anthropogenic Controls over Global Terrestrial N2O Emission Growth at a Century-Long Time Scale. AGU Fall Meeting 2014, San Francisco, CA, USA (Poster Presentation)
16. **Zhang B W**, Tian H Q, Yang J, Lu C Q, Xu X F, Prigent C. Can CH4 Fluxes from Wetland and Biomass Burning Explain Global CH4 Anomalies? AGU Fall Meeting 2013 (Poster Presentation).
17. Pan S F, Tian H Q, Yang J, Tao B, Ren W, Lu C Q, Dangal S, **Zhang B W**, Yang Q C and Banger K. Changes in soil organic carbon storage in the context of multi-factor global changes: Linking region to globe. Mini-Symposium on Carbon Cycle and Climate Change & Partnership Meeting. October 8, 2013 (Poster Presentation)
18. Galantowicz J, Samanta A, Picton J, **Zhang B W**, Lu C Q, Yang J, Tian H Q. Integration of Daily Inundation Extent Estimates into an Ecosystem-Atmosphere Gas Exchange Model. NACP 2013 (Poster presentation).
19. Desai A R, Xu K, Thom J, Tian H Q, **Zhang B W**, Bruhwiler L. Evaluating large-scale models of terrestrial CH4 emission with a very tall tower. NACP AIM4, Albuquerque NM 2013 (Poster presentation).