

**Xiaofeng Xu, Ph.D.**

Associate Professor of Ecology  
 Biology Department, San Diego State University  
 Tel: 619-594-2279  
 E-mail: [xxu@sdsu.edu](mailto:xxu@sdsu.edu)

Lab website: <https://xulab.sdsu.edu/>

ORCID: <https://orcid.org/0000-0002-6553-6514>

Research.com: <https://research.com/u/xiaofeng-xu>

Publons: <http://www.researcherid.com/rid/B-2391-2008>

Research Gate: <https://www.researchgate.net/profile/Xiaofeng-Xu-13>

Google Scholar: <https://scholar.google.com/citations?user=MfcLhfoAAAAJ&hl=en>

Xiaofeng Xu is a global change ecologist with strong quantitative skills. He is passionate about how terrestrial ecosystems respond and provide feedback to the climate system in the framework of the Earth System. He is currently focusing on microbial macroecology and applications of ecological and evolutionary theories to understand microbial contributions to the carbon cycle and greenhouse gas flux in an Earth system modeling framework. He is a recipient of the NSF CAREER award and the ESA Asian Section Early Career Award. He is included in Sandford University World's Top 2% scientists every year since 2022.

**Research Interest**

- Land surface modeling in the Earth System Modeling Framework
- Land-atmosphere feedback
- Greenhouse gases in terrestrial ecosystems
- Microbial macroecology
- Microbial sociobiology and its impacts on ecosystem functioning

**Education**

Ph.D.	Forest Biology & Ecology	Dec. 2010	Auburn University	USA
M.S.	Environmental Sciences	Jun. 2004	Chinese Academy of Sciences	China
B.A.	Biotechnology	Jun. 2000	Henan Normal University	China

**Professional Experience**

- Aug. 2022 – present Associate Professor San Diego State University
- Jan. 2016 – Jul. 2022 Assistant Professor San Diego State University
- Aug. 2014 – Dec. 2015 Assistant Professor University of Texas at El Paso
- May. 2013 – May. 2018 Affiliate Assistant Professor Auburn University
- Aug. 2011 – Aug. 2014 Postdoctoral Researcher Oak Ridge National Laboratory
- Dec. 2010 – Aug. 2011 Postdoctoral Fellow Auburn University
- Jan. 2007 – Dec. 2010 Research Assistant Auburn University
- Jul. 2004 – Dec. 2006 Research Assistant Chinese Academy of Sciences
- Jul. 2001 – Jun. 2004 Research Assistant Chinese Academy of Sciences
- Jul. 2000 – Sep. 2001 Experimental technician Chinese Academy of Sciences

**Publications (\* indicates corresponding author, # undergraduates, + graduate students, ++ postdoc in my lab)**

1. Guo Z.Y.+, Zhu X.H.+, **Xu X.F.**, Song C.C.\*, Yuan F.H.\*. (2025) Tillage and fertilization impacts on particulate organic carbon in agricultural soils depend on edaphic factors. *Soils and Tillage Research* (under review)
2. Cui Y.X., Peng S.S., Rillig Mathias C., Camenaind Tessa., Delgado-Baquerizo Manuel, Terrer Cesar., **Xu X.F.**, Feng M. Y., Fang L.C., Zhu B., Du E., Moorhead D.L., Sinsabaugh R.L., Penuelas J., Elser J.J.\* (2025) Global patterns of nutrient limitation in soil microorganisms. *Proceedings of the National Academy of Sciences of the United States of America* (major revision).
3. Chen N., Wang X.W., Yuan F.H., Song Y.Y., Sun L., Zuo Y.J.+, Wang N.N., Yu D.P., Zhou L., **Xu X.F.**\*, Song C.C.\* , Wang Q.W.\* (2025) Warming-independent snowfall reduction enhances vegetation greening across northern permafrost region. *Communication Earth & Environment* (minor revision)
4. He L.Y.++, Lipson D.L. Cleland E.E., **Xu X.F.**\* (2025) Reduce revenue vs. increase expenditure: fires and plant invasion drive soil carbon loss with different mechanisms in a Mediterranean shrubland. *Journal of Geophysical Research-Biogeosciences*. (minor revision)
5. Li K.X.+, Wang N.N.\*, Su R., Zuo Y.J., Liu J.Z., Sun Y., Zhu X.H.+, Guo Z.Y.+, Zhang L.H., Song C.C., Chen N., Lupakov S., Yuan F.H., **Xu X.F.**\* (2025) Shifting soil N regimes over a 70-year chronosequence of wetland reclamation and restoration. *Catena* (In press)
6. Wang L.P., Liu H.J., Wang X., **Xu X.F.**, He L.Y., Luo C., Li Y., Zhang X.L., Zang D.Q., Zheng S.F.\*, Mei X.D. (2025) Identifying optimal variables to predict soil organic carbon in sandy, saline, and black soil regions: remote sensing, terrain or climate factors? *Remote Sensing*. 17(2), 237. <https://doi.org/10.3390/rs17020237>.
7. Guo Z.Y.+, Liu J.Z., He L.Y.++, Rodrigues L.M., Chen N., Zuo Y.J., Wang N.N., Zhu X.H.+, Sun Y., Zhang L.H., Song Y.Y., Zhang D.J., Yuan F.H., Song C.C.\*, **Xu X.F.** (2024) Dominant edaphic controls on particulate organic carbon in global soils. *Global Change Biology* <https://doi.org/10.1111/gcb.17619>.
8. Yao X.C., Zhang Z.Y., Li K.X.+, Yuan F.H., **Xu X.F.**, Long X.Y., Song C.C.\*. (2024) Optimizing water and nitrogen management to balance greenhouse gas emissions and yield in Chinese rice paddies. *Field Crops Research*. 319. 109621, <https://doi.org/10.1016/j.fcr.2024.109621>
9. Zuo Y.J.+, He L.Y.++, Wang Y.H.+, Liu J.Z., Wang N.N., Li K.X.+, Guo Z.Y.+, Zhang L.H., Chen N., Song C.C., Yuan F.H., Sun L.\* , **Xu X.F.**\* (2024). Genome-enabled parameterization enhances model stimulation of CH<sub>4</sub> cycling in four natural wetlands. *Journal of Advances in Modeling Earth Systems*. <https://doi.org/10.1029/2023MS004139>.
10. Ren Y.M., Zao Y., Zhao Y., Su R., Yang G.W., Li X.R., Kang J.R., Shi Y.Y., Xie Y.R., Wang N.N., Zuo Y.J., Li K.X., He L.Y., **Xu X.F.**, Zhang L.H.\* (2024) Association between CH<sub>4</sub> uptake and N<sub>2</sub>O emission in grassland depends on nitrogen inputs. *Journal of Plant Ecology*. <https://doi.org/10.1093/jpe/rtae078>.
11. Cui Y.X, Hu J.X., Peng S.S., Delgado-Baquerizo M., Moorhead D.L., Sinsabaugh R.L., **Xu X.F.**, Geyer K., Fang L.C., Smith P., Penelas J., Kuzyakov Y., Chen J.\* (2024) Limiting Resources Define the Global Pattern of Soil Microbial Carbon Use Efficiency. *Advanced Science*. <https://doi.org/10.1002/advs.202308176>

12. Hernandez-Romero A.H., Perroni Y., Sanchez V., Lazaro R., Martinez-Hernandez S., Avila-Bello C.H., **Xu X.F.**, Zhang L.H. (2024) Soil C:N:P stoichiometric signatures of grasslands differ between tropical and warm temperate climatic zones. *Biogeochemistry*, <https://doi.org/10.1007/s10533-024-01143-1>.
13. He L.Y.++, Rodrigues J.L.M., Mayes M.A., Lai C.T., Lipson D.A., **Xu X.F.\*** (2024) Modeling microbial carbon fluxes and stocks in global soils from 1901 to 2016. *Biogeosciences*, 21, 2313-2333. <https://doi.org/10.5194/bg-21-2313-2024>.
14. Li K.X., Wang N.N., Yuan F.H., Zhu X.H., Zuo Y.J., Liu J.Z., Guo Z.Y., Sun Y., Zhang L.H., Song C.C., **Xu X.F.\*** (2024) Metagenomic data highlight shifted nitrogen regime induced by wetland reclamation. *Biology and Fertility of Soils*. <https://doi.org/10.1007/s00374-024-01820-1>.
15. Wang Y.H.+, He L.Y.++, Liu J.Z.+, Arndt K.A., Rodrigues J.L.M., Zona D., Lipson D.A., Oechel W.C., Ricciuto D.M., Wullschleger S.D., **Xu X.F.\*** (2024) Intensified positive Arctic-methane feedback in the 21<sup>st</sup> century. *Ecosystem Health and Sustainability*. <https://doi.org/10.34133/ehs.0185>. (featured on the journal website)
16. Xiao Q.T., **Xu X.F.**, Qi T.C., Luo J.H., Lee X.H., Duan H.T.\* (2024) Lakes shifted from a CO<sub>2</sub> source to a sink over past two decades in China. *Science Bulletin* <https://doi.org/10.1016/j.scib.2024.03.022>.
17. Patoine G., Eisenhauer N., Cesarz S., Phillips H.R.R., **Xu X.F.**, Zhang L.H., Guerra C.A. (2024) Reply to 'Field experiments show no consistent reductions in soil microbial carbon in response to warming'. *Nature Communication* 16, 1732. <https://doi.org/10.1038/s41467-024-45509-3>.
18. Wang N.N.++, Li K.X.+, Yuan F.H.++, Zuo Y.J.+, Liu J.Z.+, Zhu X.H.+, Sun Y., Guo Z.Y., Zhang L.H., Gong C., Song Y.Y., Song C.C.\*, **Xu X.F.\*** (2024) Faster cycling but lower efficiency: a microbial metabolic perspective on carbon loss after wetland conversion to cropland. *Soil Biology and Biochemistry* <https://doi.org/10.1016/j.soilbio.2023.109260>.
19. Guo Z.Y.+, Wang Y.H.\*, Liu J.Z.+, He L.Y.+, Zhu X.H.+, Zuo Y.J.+, Wang N.N.++, Yuan F.H.++, Sun Y., Zhang L.H., Song Y.Y., Song C.C.\*, **Xu X.F.\*** (2024) Mapping turnover of dissolved organic carbon in global topsoil. *Science of the Total Environment*. 906, 167621. <https://doi.org/10.1016/j.scitotenv.2023.167621>.
20. Wang J.Y., **Xu X.F.**, Liu Y.F., Wang W.Y., Ren C.J., Guo Y.X., Wang J., Wang N.L., He L.H.++\*, Zhao F.Z.\* (2024) Unknown bacterial species lead to soil CO<sub>2</sub> emission reduction by promoting lactic fermentation in alpine meadow on the Qinghai-Tibetan Plateau. *Science of the Total Environment*. 906, 167610. <https://doi.org/10.1016/j.scitotenv.2023.167610>.
21. Chen N., Zhang Y.F., Song C.C.\*, Xu M.J., Bao T., Yuan F.H., Zuo Y.J., Liu J.Z., Zhang T., Song Y.Y., Sun L. Guo Y.D., Zhang H., M G.B., Du Y., **Xu X.F.\***, Wang X.W.\* (2023) Warming-induced increasing vapor pressure deficit suppression of vegetation growth diminished in northern peatlands. *Nature Communications* <https://doi.org/10.1038/s41467-023-42932-w>.
22. Zhang L.H., Jia L.Z., He L.Y.++, Lipson D.A., Wang Y.H.+, Wang S.Z., **Xu X.F.\*** (2023) Homeostatic evidence of management-induced phosphorus decoupling from soil microbial carbon and nitrogen metabolism. *Journal of Plant Ecology* <https://doi.org/10.1093/jpe/rtad035>.
23. He L.Y.++, Viogy N., **Xu X.F.\*** (2023) Differentiation of soil bacterial and fungal macroecology in the United States. *Global Biogeochemical Cycles*, 37, 11, e2023GB007706. <https://doi.org/10.1029/2023GB007706>.

24. Liu J.Z., Yuan F.H.\*, Chen N., Wang N.N., Zuo Y.J., Li K.X., Guo Z.Y., Zhu X.H., Sun Y., Zhang L.H., Guo Y.D., **Xu X.F.**, Song C.C.\* (2023) Terrestrial Net Ecosystem Productivity in China during 1900-2100. *Ecosystem Health and Sustainability*. <https://doi.org/10.34133/ehs.0139>.
25. Ren Y.X., Mao D.H.\*, Wang Z.M., Yu Z.C., **Xu X.F.**, Huang Y.N., Xi Y.B., Luo L., Jia M.M., Song K.S., Li X.Y. (2023) China's wetland soil organic carbon pool: new estimation on pool size, change, and trajectory. *Global Change Biology*, DOI: 10.1111/gcb.16923. <https://doi.org/10.1111/gcb.16923>.
26. Chen L., Wang J.Y., He L.Y., **Xu X.F.**, Wang J., Ren C.J., Guo Y.X., Zhao F.Z. (2023) Metagenomic highlight contrasting elevational pattern of bacteria- and fungi-derived compound decompositions in forest soils. *Plant and Soil*. <https://doi.org/10.1007/s11104-023-06104-5>.
27. Zhang L.H.++\*, Janssens Ivan A., Zhu X.H., Lipson David., Zona Donatella, Yuan F.H.++, Wang N.N., Song Y.Y., Song C.C., Son Yowhan, Oechel W., **Xu X.F.\*** (2023) N-induced soil acidification triggers metal stimulation of soil methane oxidation in a temperate steppe ecosystem. *Soil Biology and Biochemistry*. <https://doi.org/10.1016/j.soilbio.2023.109098>
28. Li S., Zhou J., Liu Q.\*, Liang L., Sun T., **Xu X.F.**, Li M., Wang X., Yuan X.M. (2023) Warming influences CO<sub>2</sub> emissions from China's coastal saltmarsh wetlands more than changes in precipitation. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2023.163551>.
29. Guan Q., Wu H.T., **Xu X.F.**, Slyen Z.Z., Xue Z.S. (2023) Geographic and climatic dependent patterns in spatial distributions of snail (Mollusca: Gastropoda) assemblages in freshwater wetlands across Northeast China. *Freshwater Biology*. <https://doi.org/10.1111/fwb.14086>.
30. He L.Y.++, Rodrigues J., Mayes M., Lai C.T., Lipson D.L., **Xu X.F.\*** (2023) Historical dynamics of terrestrial carbon during 1901-2016 as simulated by the CLM-Microbe model. *Biogeosciences Discussion*. <https://doi.org/10.5194/bg-2023-15>.
31. Yuan F.H.++, Ricciuto D.M., **Xu X.F.**, Roman D.T., Lilleskov E., Wood J.D., Cadillo-Quiroz H., Lafuente A., Rengifo J., Kolka R., Fachin L., Wayson C., Hergoualc'h K., Chimner R.A., Frie A., Griffis T.J. (2023) Evaluation and improvement of the E3SM land model for simulating energy and carbon fluxes in an Amazonian peatland. *Agricultural and Forestry Meteorology* 332, <https://doi.org/10.1016/j.agrformet.2023.109364>
32. Zhu X.H., Guo Z.Y., Wang N.N., Liu J.Z. Zuo Y.J., Li K.X., Song C.C., Song Y.Y., Gong C., **Xu X.F.**, Yuan F.Y.\*, Zhang L.H.\* (2023) Environmental stress stimulates microbial activities as indicated by Cyclopropane fatty acid enhancement. *Science of the Total Environment* 873, <https://doi.org/10.1016/j.scitotenv.2023.162338>
33. Wang N.N.+\*, Zhu X.H., Zuo Y.J., Liu J.Z., Yuan F.H., Guo Z.Y., Zhang L.H., Sun Y., Gong C., Guo D.F., Song C.C., **Xu X.F.** (2023) Microbial mechanisms for a methane source-to-sink transition after wetland conversion to cropland. *Geoderma*, 429, 116229. <https://doi.org/10.1016/j.geoderma.2022.116229>
34. Zhao F.Z., He L.Y., Bond-Lamberty B., Janssens I., Wang J.Y., Pang G.W., Wu Y.W., **Xu X.F.\*** (2022) Latitudinal shifts of microbial biomass seasonality. *PNAS Nexus*, pgac254. <https://doi.org/10.1093/pnasnexus/pgac254>.
35. Ma L.N.\*, Zhang C.X., **Xu X.F.**, Wang C.W., Liu G.F., Lv Y.X., Wang R.Z. (2022) Different facets of bacterial and fungal communities drive soil multifunctionality in

- grasslands spanning a 3,500 km transect. *Functional Ecology*. <https://doi.org/10.1111/1365-2435.14220>. (top downloaded in the journals in 2023)
36. Li Y., Wang J.Y., He L.Y.++, **Xu X.F.**, Wang J., Ren C.J., Guo Y.X., Zhao F.Z.\* (2022) Different mechanisms driving increasing abundance of microbial phosphorus cycling gene groups along an elevational gradient, *iScience*. <https://doi.org/10.1016/j.isci.2022.105170>
  37. Yao Y.Z., Tian H.Q.\*, **Xu X.F.**, Li Y., Pan S.F. (2022) Dynamics and controls of inland water CH<sub>4</sub> emissions across the conterminous United States: 1860-2019. *Water Research*, 224,119043. <https://doi.org/10.1016/j.watres.2022.119043>.
  38. Wang N.N., Zhu X.H.+, Zuo Y.J.+, Liu J.Z.+, Yuan F.H.++, Guo Z.Y., Zhang L.H., Sun Y., Gong C., Song C.C., **Xu X.F.**\* (2022) Metagenomic evidence of suppressed methanogenic pathways along soil profile after wetland conversion to cropland. *Frontier in Microbiology* <https://doi.org/10.3389/fmicb.2022.930694>.
  39. Liu J.Z., Yuan F.H., Zuo Y.J., Zhu X.H., Li K.X., Wang N.N., Chen N., Guo Z.Y., Zhang L.H., Sun Y., Guo Y.D., Song C.C.\*\*\*, **Xu X.F.**\* (2022) Warming-induced vegetation growth cancels out soil carbon-climate feedback in the northern Asian permafrost region in the 21<sup>st</sup> century, *Environmental Research Letters*. <https://doi.org/10.1088/1748-9326/ac7eda>.
  40. Patoine Guillaume, Eisenhauer Nico., Cesarz Simone., Phillips Helen., **Xu X.F.**, Zhang L.H., Guerra Carlos. (2022) Drivers and trends of global soil microbial carbon over two decades. *Nature Communications*. <https://doi.org/10.1038/s41467-022-31833-z>.
  41. Wang J.Y., He L.Y.+, **Xu X.F.**, Ren C.J., Wang J., Guo Y.X. Zhao F.Z. (2022) Microbial functional genes drive soil net N mineralization in forests along an elevational gradient, *European Journal of Soil Science*. <https://doi.org/10.1111/ejss.13276>.
  42. Wang Y.H.+, Yuan F.M., Arnt K., Liu J.Z., He L.Y.+, Zuo Y.J., Zona D., Lipson D.A., Oechel W.C., Ricciuto D.M., Wullschlegler S.D., Thornton P.E., **Xu X.F.**\* (2022) Upscaling methane flux from plot level to eddy covariance tower domains in five Arctic tundra ecosystems. *Frontier in Environmental Sciences*. 10. <https://doi.org/10.3389/fenvs.2022.939238>.
  43. Li, D.++, He L.Y.+\*, Qu J.G., **Xu X.F.** (2022) Spatial evolution of cultivated land in the Heilongjiang Province in China from 1980 to 2015. *Environmental Monitoring and Assessment*, 194:444. <https://doi.org/10.1007/s10661-022-1011903>.
  44. Zuo Y.J.+, Wang Y.H.+, He L.Y.+, Wang N.N., Liu J.Z.+, Yuan F.H.++, Li K.X.+, Guo Z.Y., Sun Y., Zhu X.H.++, Zhang L.H., Song C.C., Sun L.\* , **Xu X.F.**\* (2022) Modeling methane dynamics in three wetlands in northeastern China by using the CLM-Microbe model. *Ecosystem Health and Sustainability*. <https://doi.org/10.1080/20964129.2022.2074895>.
  45. Ma S., Jiang L.F., Wilson R.W., Chanton J., Brigham C., Niu S., Iversen C.M., Malhotra A., Jiang J., Lu X.J., Huang Y., Keller J., **Xu X.F.**, Ricciuto D., Hanson P.J., Luo Y.Q. (2022) Evaluating alternative ebullition models for predicting peatland methane emission and its pathways via data-model fusion, *Biogeosciences*, 19, 2245-2262. <https://doi.org/10.5194/bg-19-2245-2022>.
  46. Zhu X.H.+, Yuan F.H.++, He L.Y.+, Guo Z.Y., Wang N.N.++, Zuo Y.J., Liu J.Z., Li K.X.+, Wang Y.H.+, Sun Y., Zhang L.H., Song C.C., Song Y.Y., Gong C., Guo D.F.\*, **Xu X.F.**\* (2022) Wetland conversion to cropland alters soil microbes along soil profiles and over seasons. *Catena*, 214, 106282, <https://doi.org/10.1016/j.catena.2022.106282>
  47. Zona D.\*, Lafleur P.M., Hufkens K., Bailey B., Gioli B., Burba G., Goodrich J.P., Lijedahl A.K., Euskirchen E.S., Watts J.D., Farina M., Kimball J.S., Heimann M., Goeckede M.,

- Pallandt M., Christensen T.R., Nastepanov M, Lopez-Balanco E., Jackowica-Korczynski M., Dolman A.J., Marchesini L.B., Commane R., Wofsy S.C., Miller C.E, Lipson D.A., Hashemi J., Arndt K.A., Kutzbach L, Holl D., Boike J., Wille C., Sachs T., Kalhori A., Song X., **Xu X.F.**, Humphreys E.R., Koven C.D., Sonnentag O., Meyer G., Gosselin G.H., Marsh P., Oechel W.C. (2022) Earlier snowmelt may lead to late-season declines in plant productivity and carbon sequestration in Arctic tundra ecosystems, *Scientific Report*, 12, 3986, <https://doi.org/10.1038/s41598-022-07561-1>. ***This study was featured in the media.***  
SDSU Newscenter:  
[https://newscenter.sdsu.edu/sdsu\\_newscenter/news\\_story.aspx?sid=78713](https://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=78713)
48. Tao H., Song K.S., Liu G., Wang Q., Wen Z., Jacinthe Pierre-Andre., **Xu X.F.**, Du J., Shang Y.X., Li S.J., Wang Z.M., Lyu L., Hou J.B., Wang X., Liu D., Shi K., Zhang B.H., Duan H. (2022) A Landsat-derived annual inland water clarity dataset of China between 1984 and 2018. *Earth System Science Data*. 14, 79-94. <https://doi.org/10.5194/essd-14-79-2022>.
  49. Fang C., Song K.S.\*, Paerl H, Jacinthe P., Wen, Z, Liu G., Tao, H., **Xu X.F.**, Kutser T., Wang Z., Duan H., Shi K., Shang Y., Lyu L, Li S., Yang Q., Lyu D., Mao D., Zhang B., Cheng S., Lyu Y. (2022) Global divergent trends of algal blooms detected by satellite during 1982-2018. *Global Change Biology*, <https://doi.org/10.1111/gcb.16077>.
  50. Zhao F.Z., Wang Y., Li Y., **Xu X.F.**, He L., Wang J., Ren C., Guo Y. (2022) Microbial functional genes driving the positive priming effect in forest soils along an elevation gradient. *Soil Biology and Biochemistry*, 165, 108498. <https://doi.org/10.1016/j.soilbio.2021.108498>.
  51. Abramoff, R.Z.\*, Guenet B., Zhang H.C., Georgiou K., **Xu X.F.**, Viscarra Rossel R.A., Yuan W.P., Ciais P. (2022) Improved global-scale predictions of soil carbon stocks with Millennial Version 2. *Soil Biology and Biochemistry*, 164,108466. <https://doi.org/10.1016/j.soilbio.2021.108466>.
  52. Yuan F.H.++, Wang Y.H., Ricciuto Daniel M., Shi X.Y., Yuan F.M., Brehme T., Bridgham S., Keller J., Warren J.M., Griffiths N.A., Sebestyen S.D., Hanson P.J., Thornton P.E. **Xu.X.F.\*** (2021) Hydrological feedbacks on peatland CH<sub>4</sub> emission under warming and elevated CO<sub>2</sub>: a modeling study. *Journal of Hydrology*, 603, 127137. <https://doi.org/10.1016/j.jhydrol.2021.127137>.
  53. He L.Y.+, **Xu X.F.\***, (2021) Mapping soil microbial residence time at the global scale. *Global Change Biology*. <https://doi.org/10.1111/gcb.15864>.
  54. Ma L.N.++, **Xu X.F.**, Zhang C.X., Lv Y.X., Feng J.C., Wang R.Z.\* (2021) Strong non-growing season N uptake by deciduous trees in a temperate forest: a <sup>15</sup>N isotopic experiment, *Journal of Ecology*. <https://doi.org/10.1111/1365-2745.13754>. **(co-first author)**
  55. Chen N., Song C.C.\*, **Xu X.F.**, Wang X.W., Cong N, Jiang P.P., Zu J.X., Sung L., Song Y.Y., Zuo Y.J., Liu J.Z., Zhang T., Xu M.J., Jiang P., Wang Z.P., Huang K. (2021) Different impacts of atmospheric water demand on gross primary productivity in three typical ecosystems in China. *Agricultural and Forestry Meteorology*, 307. <https://doi.org/10.1016/j.agrformet.2021.108527>.
  56. Yuan F.H.++, Wang Y.H., Ricciuto Daniel M., Shi X.Y., Yuan F.H., Hanson P.J., Bridgham S., Keller J., Thornton P.E., **Xu.X.F.\*** (2021) An integrative model for soil biogeochemistry and methane processes: II. Warming and elevated CO<sub>2</sub> effects on peatland CH<sub>4</sub> emission. *JGR-Biogeosciences*. <https://doi.org/10.1029/2020JG005963>.

57. Ricciuto D.\*, **Xu X.F.**, Shi X.Y., Wang Y.H., Song X., Schadt C, Griffiths N., Thornton P.E., Chanton J., Keller Jason, Bridgham S., Gutknecht J., Sebestyen S., Finzi A., Hanson P.J. (2021). An integrative model for soil biogeochemistry and methane processes: I. model structure and sensitivity analysis. *JGR-Biogeosciences*.  
<https://doi.org/10.1029/2019JG005468>. (**top downloaded paper**)
58. Liu J.Z., Zuo Y.J., Wang N.N., Yuan F.H.++\*, Zhang L.H., Zhang J.W., Zhu X.H., Sun Y., Guo Z.Y., Guo Y.D., Song X., Song C.C.\*, **Xu X.F.\*** (2021) Comparative analysis of two machine learning algorithms in predicting site-level net ecosystem exchange in major biomes. *Remote Sensing*, 13, 2242. <https://doi.org/10.3390/rs13122242>.
59. He L.Y., Lai C.T., Mayes M., Murayama S., **Xu X.F.\*** (2021) Microbial seasonality promotes soil respiration carbon emission in natural ecosystems: a modeling study. *Global Change Biology*. <https://doi.org/10.1111/gcb.15627>.  
**This study was featured in the media.**  
SDSU Newscenter:  
[https://newscenter.sdsu.edu/sdsu\\_newscenter/news\\_story.aspx?sid=78418](https://newscenter.sdsu.edu/sdsu_newscenter/news_story.aspx?sid=78418).  
ScienceDaily:  
<https://www.sciencedaily.com/releases/2021/05/210510104355.htm#:~:text=Microbes%20consume%20carbon%20as%20the,carbon%20emissions%20and%20vice%20versa.>  
EurekAlert: [https://www.eurekalert.org/pub\\_releases/2021-05/sdsu-ish050721.php](https://www.eurekalert.org/pub_releases/2021-05/sdsu-ish050721.php)  
The Education Magazine: <https://www.theeducationmagazine.com/education-now/microbial-fluctuations-soil-emits-carbon/>  
Samachar Central: <https://samacharcentral.com/in-soil-high-microbial-fluctuation-leads-to-more-carbon-emissions/>  
Environmental Health News: <https://www.ehn.org/soil-climate-change-2653014050.html>  
My Droll: <https://mydroll.com/in-soil-high-microbial-fluctuation-leads-to-more-carbon-emissions/>  
News Break: <https://www.newsbreak.com/news/2233138207694/in-soil-high-microbial-fluctuation-leads-to-more-carbon-emissions>  
Phys.org: <https://phys.org/news/2021-05-soil-high-microbial-fluctuation-carbon.html>  
Funtitech: <https://funtitech.com/in-soil-large-microbial-variability-increases-carbon-emissions/34821/>
- This study is also featured on the DOE Environmental System Sciences website.**  
<https://ess.science.energy.gov/highlight/seasonal-fluctuations-in-temperature-and-moisture-lead-to-a-fluctuation-in-soil-microbial-populations-and-changes-soil-carbon-emissions/>
60. Yuan X.M., Liu Q.\*, Cui B.S., **Xu X.F.**, Liang L.Q., Sun T., Yan S.R., Wang X., Li C.H., Li S.Z., Li M. (2021) Effects of water-level fluctuations on methane and carbon dioxide dynamics in a shallow lake, Norther China: implications for wetland restoration. *Journal of Hydrology*, 597, 126169. <https://doi.org/10.1016/j.jhydrol.2021.126169>.
61. Zhu X.H., Zhang L.H.\*, Zuo Y.J., Liu J.Z., Yu J.L., Yuan F.H., Wang N.N., He L.Y., Wang Y.H., Guo Z.Y., Sun Y., Song Y.Y., Song C.C., Guo D.F.\*, **Xu X.F.\*** (2021) Wetland reclamation homogenizes microbial properties along soil profile in Northeastern China, *Geoderma*, 395, 115075. <https://doi.org/10.1016/j.geoderma.2021.115075>.
62. Song K.S.\*, Fang, C., Jacinthe P.A., Wen Z.D., Liu G., **Xu X.F.**, Sheng Y.X., Lyv L. (2021) Climatic versus anthropogenic controls of decadal trends (1983-2017) in algal blooms in

- lakes and reservoirs across China. *Environmental Science and Technology*.  
<https://dx.doi.org/10.1021/acs.est.0c06480>.
63. Wang N.N., Li L., Dannenmann M., Luo Y.K., Xu X.H., Zhang B.W., Chen S.P., Dong K.H., Huang J.H., **Xu X.F.**, Wang C.H.\* (2021) Seasonality of gross ammonification and nitrification altered by precipitation in a semi-arid grassland of Northern China. *Soil Biology and Biochemistry*. <https://doi.org/10.1016/j.soilbio.2021.108146>.
  64. Tang H.Q., Zhang N., Ni H.W., **Xu X.F.**, Wang X.Y., Sui Y.Y., Sun B.\*, Liang Y.T.\* (2021) Increasing environmental filtering of diazotrophic communities with a decade of latitudinal soil transplantation, *Soil Biology and Biochemistry*.  
<https://doi.org/10.1016/j.soilbio.2020.108119>.
  65. He L.Y., Lipson D.L., Rodrigues Jorge., Mayes Melanie A., Bjork R.G., Glaser B., Thornton P.E., **Xu X.F.\*** (2021) Dynamics of fungal and bacterial biomass carbon in natural ecosystems: site-level application of the CLM-Microbe model. *Journal of Advances in Modeling Earth Systems*. <https://doi.org/10.1029/2020MS002283>. **This study is featured on the DOE Environmental System Sciences website.**  
<https://ess.science.energy.gov/highlight/simulating-microbial-community-structure-fungi-and-bacteria-in-an-earth-system-model-the-clm%E2%80%90microbe-model/>
  66. Sihi, D., **Xu, X.F.**, Salazar Ortiz, M., O'Connell, C. S., Silver, W. L., López-Lloreda, C., Brenner, J. M., Quinn, R. K., Phillips, J. R., Newman, B. D., and Mayes, M. A.: (2021) Representing methane emissions from wet tropical forest soils using microbial functional groups constrained by soil diffusivity, *Biogeosciences*, 18,1769-1786.  
<https://doi.org/10.5194/bg-18-1769-2021>.
  67. Shi X.Y., Ricciuto D.M., Thornton P.E., **Xu X.F.**, Yuan F.M, Norby R.J., Walker A.P., Warren J., Mao J.F., Hanson P.J, Meng L, Weston D., Griffiths N.A. (2021) Extending a land-surface model with Sphagnum moss to simulate responses of a northern temperate bog to whole ecosystem warming and elevated CO<sub>2</sub>. *Biogeosciences*,18,467-486.  
<https://doi.org/10.5194/bg-18-467-2021>.
  68. Ma L.N., Zhang C.X., Feng J.C., Liu G., **Xu X.F.**, Lu Y.X, He W.M.\*, Wang R.Z.\* (2020) Retention of early-spring nitrogen in temperate grasslands: the dynamics of ammonium and nitrate nitrogen differ. *Global Ecology and Conservation*.  
<https://doi.org/10.1016/j.gecco.2020.e01335>.
  69. He L.Y., Rodrigues J., Soudzilovskaia, Barcelo M., Olsson P.A., Song C.S., Tedersoo L., Yuan F.H.++, Yuan F.M., Lipson D.L., **Xu.X.F.\*** (2020) Global biogeography of fungal and bacteria biomass in topsoil, *Soil Biology and Biochemistry*.  
<https://doi.org/10.1016/j.soilbio.2020.108024>.
  70. Guo Z.Y., Wang Y.H.+, Wan Z.M., Zuo Y.J., He L.Y., Li Dan., Yuan F.H.++, Wang N.N.+, Liu J.Z.+, Song Y.Y., Song C.C., **Xu X.F.\***. (2020). Global budget and distribution of soil dissolved organic carbon in terrestrial ecosystems. *Global Ecology and Biogeography*,  
<https://doi.org/10.1111/GEB.13186>.
  71. Wang N.N., Li Lei, Zhang B.W., Chen S.P., Sun W., Luo Y.K., Dong K.H., Han X.G., Huang J.H., **Xu X.F.**, Wang C.H.\* (2020) Population turnover promotes fungal stability in a semi-arid grassland under precipitation shifts. *Journal of Plant Ecology* 13:499-509.  
<https://doi.org/10.1093/jpe/rtaa038>.
  72. **Xu X.F.\*** Wang N.N., Lipson D., Sinsabaugh R., Schimel J., He L., Soudzilovskaia N., Tedersoo L. (2020) Microbial macroecology: in search of mechanisms governing microbial



- biogeographical patterns. *Global Ecology and Biogeography*.  
<https://doi.org/10.1111/geb.13162>. (**Invited submission**) (**Highly cited paper**)
73. Yuan F.H.++, Liu J.Z.+, Zuo Y.J.+, Guo Z.Y., Wang N.N.+, Song C.C., Wang Z.M., Sun L., Guo Y.D, Song Y.Y., Mao D.H., Xu F.F, **Xu X.F.\*** (2020) Rising vegetation activity dominates growing water use efficiency in the Asian permafrost region from 1900 to 2100. *Science of the Total Environment*. <https://doi.org/10.1016/j.scitotenv.2020.139587>.
  74. Song C.Q., Luan J.W., **Xu X.F.**, Ma M.N., Aurela M., Lohila A., Mammarella I., Alekseychik P., Tuittila E., Chen X.Z., Meng X.H., Yuan W.P\*. (2020) A microbial functional group-based CH<sub>4</sub> model integrated into a terrestrial ecosystem model: model structure, site-level validation and sensitivity analysis. *Journal of Advances in Modeling Earth Systems*. <https://doi.org/10.1029/2019MS001867>.
  75. Ma L.N.++, Gao X.L., Liu G.F., **Xu X.F.\*** Lu X.T., Xin X.P, Lu Y.X., Zhang C.X., Zhang L.H., Wang R.Z.\* (2020). The retention dynamics of N input within the soil-microbe-plant system in a temperate grassland, *Geoderma*, 368. <https://doi.org/10.1016/j.geoderma.2020.114290>.
  76. Ma J.G., Duan H.T.\* , He L.Y.+, Tiffany M., Cao Z.G., Qi T.C., Shen M., Bigg T., **Xu X.F.\***. (2020) Spatiotemporal patterns of gypsum blooms in the Salton Sea, California, during 2000-2018. *International Journal of Applied Earth Observation and Geoinformation*, 89. <https://doi.org/10.1016/j.jag.2020.102090>.
  77. Zhang L.H.++, Yuan F.H.++, Bai J.H.\* , Duan H.T., Gu X.Y., Hou L.Y., Huang Y., Yang M.A., He J.S., Zhang Z.H., Yu L.J., Song C.S., Lipson D., Zona D., Oechel W., Janssens I.A., **Xu X.F.\*** (2020) Phosphorus alleviation of nitrogen-suppressed methane sink in global grasslands. *Ecology Letters*. 23, 821-830. <https://doi.org/10.1111/ele.13480>.
  78. Xiao Q.T., **Xu X.F.**, Duan H.T., Qi T.C., Qin B.Q., Lee X.H, Hu Z.H., Wang W., Xiao W., Zhang M. (2020) Eutrophic Lake Taihu as a significant source of CO<sub>2</sub> during 2000-2015. *Water Research*, 170(1), 115331, <https://doi.org/10.1016/j.watres.2019.115331>.
  79. Deng H., Yin Y.H\*, Wu S.H., **Xu X.F.** (2020) Contrasting drought impacts on the start of phenological growing season in Northern China during 1982-2015. *International Journal of Climatology*, 40(7), 3330-3347. <https://doi.org/10.1002/joc.6400>.
  80. Wang, Y.+, Yuan, F.H.++, Yuan, F.M., Gu, B., Hahn, M.S., Torn, M.S., Ricciuto, D.M., Kumar, J., He, L.+, Zona, D., Lipson, D.L., Wagner, R., Oechel, W.C., Wullschlegel, S.D., Thornton, P.E., **Xu, X.F.\*** (2019) Mechanistic Modeling of microtopographic impact on CH<sub>4</sub> processes in an Alaskan tundra ecosystem using the CLM-Microbe model. *Journal of Advances in Modeling Earth Systems*, 11, 4288-4304. <https://doi.org/10.1029/2019MS001771>.
  81. Natali S.\* , Watts J.D.\* , Rogers B.M, Potter S., Ludwig S.M., Selbmann A., Sullivan P.F., Abbott B.W., Amdt K.A., Birch L., Bjorkman M.P., Bloom A.A., Celis G., Christensen T.R., Christiansen C.T., Comane R., Cooper E.J., Crill P., Czimczik C., Davydov S., Du J., Egan J.E., Elberling B., Euskirchen E.S., Friborg T., Genet H., Gockede M., Goodrich J.P., Grogan P., Helbig M., Jafarov E.E., Jastrow J.D., Kalhori A.A., Kim Y., Kimball J., Kutzbach L., Lara M.J., Larsen K.S., Lee B.Y., Liu Z., Loranty M.M., Lund M., Lupascu M., Madani N., Malhotra A., Matamala R., McFarland J., McGuire A.D., Michelsen A., Minions C., Oechel W.C., Olefeldt D., Parmentier F.W, Pirk N., Poulter B, Quinton W., Rezanezhad F., Risk D., Sachs T., Schaefer K., Schmidt N.M., Schuur E.A.G., Semenchuk P.R, Shaver G., Sonnentag O., Starr G., Treat .C., Waldrop M.P., Wang Y.H.+, Welker J., Wille C., **Xu X.F.**, Zhang Z., Zhuang Q.L, Zona D. (2019). Large loss of CO<sub>2</sub> in winter

- observed across the northern permafrost region. *Nature Climate Change*  
<https://doi.org/10.1038/s41558-019-0592-8>. **This study was featured on the media:**  
<https://www.sciencedaily.com/releases/2019/11/191108132421.htm>
82. Liu J.Z., Gao L.P.++, Yuan F.H.++, Guo Y.D. **Xu X.F.**\*. (2019) Climate change made major contributions to soil water storage decline in the Southwestern U.S. during 2003-2014. *Water* 11,1947. <https://doi.org/10.3390/w11091947>.
  83. Yuan F.H.++, Wu J.B., Wang A.Z., Guan D.X.\*, Zhang Y.S., Rajah K.I., **Xu X.F.** (2019) A semi-empirical model for horizontal distribution of surface wind speed leeward windbreaks, *Agroecology*. <https://doi.org/10.1007/s10457-019-00417-0>.
  84. Gao L.P.++, Tao B., Miao Y.X.+, Zhang L.H.++, Song X., Ren W., He L.Y.+, **Xu X.F.**\* (2019) A global dataset for economic losses of extreme hydrological events during 1960-2014. *Water Resource Research*. <https://doi.org/10.1029/2019WR025135>.
  85. Gu X.Y., Wang Y.H., Laanbroek H.J., **Xu X.F.**, Song B., Hou Y.W., Chen S.P., Li L.H., Zhang L.H.++\*. (2019) Saturated N<sub>2</sub>O emission rates occur above the nitrogen deposition level predicted for the semi-arid grasslands of Inner Mongolia, China, *Geoderma*, 341, 18-25. <https://doi.org/10.1016/j.geoderma.2019.01.002>.
  86. Li Z.L., Tian D.S., Wang B.X., Wang J.S., Chen H., **Xu X.F.**, Niu S.L.\*. (2019) Microbes drive global soil nitrogen mineralization and availability, *Global Change Biology*, 25(3) 1078-1088. <https://doi.org/10.1111/gcb.14557>. (**Top 20 most downloaded papers in the journal in 2019**)
  87. Xiao Q.T., **Xu X.F.**, Zhang M., Duan H.T.\*, Hu Z.H., Wang W., Xiao W, Lee X.H.\* (2019) Co-regulation of nitrous oxide emissions by nitrogen and temperature in China's third largest freshwater lake (Take Taihu). *Limnology and Oceanography*  
<https://doi.org/10.1002/lno.11098>.
  88. Ma L.N.++, Chen H., **Xu X.F.**\*, Xin X.P., Liu J.Y., Wang R.Z.\* (2018) Nitrogen acquisition strategies during winter-spring transitional period are divergence at species level yet convergence at ecosystem level in a semi-arid grassland. *Soil Biology and Biochemistry*.122, 150-159. <https://doi.org/10.1016/j.soilbio.2018.04.020>.
  89. Xu, Z., Yu, G.\*, Zhang, X.\*, He, N., Wang, Q., Wang, S., **Xu X.F.**, Wang, R., and Zhao, N.: (2018) Divergence of dominant factors on soil microbial communities and functions in forest ecosystems along a climatic gradient, *Biogeosciences* 15, 1217-1228.  
<https://doi.org/10.5194/bg-15-1217-2018>.
  90. Abramoff, R.\*, **Xu X.F.**, Hartman M., O'Brien S., Feng W.T., Davidson E., Finzi A., Moorhead D., Schimel J.P., Torn M., Mayes M. (2018) The Millennial model: in search of measurable pools and transformations for modeling soil carbon in the new century. *Biogeochemistry* 137, 51–71. <https://doi.org/10.1007/s10533-017-0409-7>. (**Top 3 most cited papers in the journal in 2019**)
  91. Xu Z.W., Yu G.R., Zhang X.\*, He N.P.\*, Wang Q.F., Wang S., **Xu X.F.**, Wang R.L., Zhang N. (2018) Biogeographical patterns of soil microbial community as influenced by soil characteristics and climate across Chinese forest biomes, *Applied Soil Ecology*. 124, 298-305. <https://doi.org/10.1016/j.apsoil.2017.11.019>.
  92. Wang C.H., Wang N.N., Zhu J.X., Liu Y., **Xu X.F.**, Niu S.L., Yu G.R., Han X.G., He N.P.\* (2018) Soil gross N ammonification and nitrification from tropical to temperate forests in eastern China. *Functional Ecology*. <https://doi.org/10.1111/1365-2435.13024>. (**Top 20 most downloaded papers in the journal in 2018**)

93. Tang D.D.#, Ma C++, Wang Y., **Xu X.F.\***, (2017) Multi-Scale Evaluation of NCEP and CRUNCEP datasets at 90 Large U.S. Cities. *Journal of Geophysical Research-Atmosphere*. <https://doi.org/10.1002/2016JD026165>.
94. Song, X.\*++, Hoffman F.M., Iversen C.M., Yin Y.H., Kumar J., Ma C.++, **Xu X.F.\***, (2017) Significant inconsistency of vegetation carbon density in CMIP5 Earth System Models against observational data. *JGR-Biogeosciences*. <https://doi.org/10.1002/2017JG003914>.
95. **Xu, X.F.\***, Schimel, J.P., Janssens, I.A., Song, X., Song, C., Yu, G., Sinsabaugh, R.L., +Tang, D., Zhang, X++ & Thornton, P.E. (2017) Global Pattern and Controls of Soil Microbial Metabolic Quotient. *Ecological Monographs*. <https://doi.org/10.1002/ecm.1258>. (**One of the Top 20 most downloaded papers in the journal in 2018**)
96. Sinsabaugh R.L.\*, Moorhead D.L., **Xu X.F.**, Litvak M.E. (2017) Plant, microbial and ecosystem carbon use efficiencies interact to stabilize microbial growth as a fraction of gross primary production, *New Phytologists*. <https://doi.org/10.1111/nph.14485>.
97. Zhang L.H.\*++, Hou L.Y., Guo D.F., Li L.H., **Xu, X. F.\***, (2017) Interactive impacts of nitrogen and water amendment on growing season fluxes of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O in a semiarid grassland, Northern China, *The Science of the Total Environment*, 578, 523-534. <http://dx.doi.org/10.1016/j.scitotenv.2016.10.219>.
98. Tang G.\*, Zheng, J., **Xu, X.F.**, Yang, Z., Graham, D. E., Gu, B., Painter, S., and Thornton, P. E.\*: (2016) Biogeochemical model of CO<sub>2</sub> and CH<sub>4</sub> production in anoxic Arctic soil microcosms, *Biogeosciences*, 13, 5021-5041. <https://doi.org/10.5194/bg-13-5021-2016>.
99. Hanson P. J\*, Gill A.L., **Xu, X.F.**, Phillips, J.R., Weston D. J, Kolka R.K., Riggs, J. S., Hook, L.A. (2016) Intermediate-scale community-level flux of CO<sub>2</sub> and CH<sub>4</sub> in a Minnesota peatland: putting SPRUCE project in a global context. *Biogeochemistry*. <https://doi.org/10.1007/s10533-016-0230-8>.
100. **Xu, X.F.\***, Yuan, F., Hanson, P. J., Wullschleger, S. D., Thornton, P. E., Riley, W. J., Song, X., Graham, D. E., Song, C., and Tian, H. (2016) Reviews and syntheses: Four Decades of Modeling Methane Cycling in Terrestrial Ecosystems, *Biogeoscienc.*,13(12): 3735-3755. <https://doi.org/10.5194/bg-13-3735-2016>.
101. Tang, G., Yuan F., Bisht G., Hammond G.E., Lichtner P., Kumar J., Mills R.T., **Xu X.F.**, Andre B., Hoffman F.M., Painter S.L.\*, Thornton P.E\*. (2016). Addressing numerical challenges in introducing a reactive transport code into a land surface model: a biogeochemical modeling proof-of-concept with CLM–PFLORTRAN 1.0, *Geosci. Model Dev.*, 9, 927-946. <https://doi.org/10.5194/gmd-9-927-2016>.
102. Luo, Y\*, Ahlström, A., Allison, S.D., Batjes, N.H., Brovkin, V., Carvalhais, N., Chappell, A., Ciais, P., Davidson, E.A., Finzi, A., Georgiou, K., Guenet, B., Hararuk, O., Harden, J.W., He, Y., Hopkins, F.M., Jiang, L., Koven, C.D., Jackson, R.B., Jones, C.D., Lara, M.J., Liang, J., McGuire, A.D., Parton, W., Peng, C., Randerson, J.T., Salazar, A., Sierra, C.A., Smith, M., Tian, H., Todd-Brown, K.E., Torn, M., van Groenendael, J., Wang, Y.-P., West, T.O., Wei, Y., Wieder, W.R., Xia, J., Xu, X., **Xu, X.F.** & Zhou, T. (2016) Towards More Realistic Projections of Soil Carbon Dynamics by Earth System Models. *Global Biogeochemical Cycles*. <https://doi.org/10.1002/2015GB005239>. (**ESI highly cited paper**)

### **Prior to SDSU**

103. **Xu X.F.\***, Hui D.F., King A.W., Song S., Thornton P.E., Zhang L.H.\* (2015) Convergence of microbial assimilations of soil carbon, nitrogen, phosphorus, and sulfur in terrestrial ecosystems. *Scientific Reports*, 5, 17445. <https://doi.org/10.1038/srep17445>.

104. Wieder W.\*, Allison S.D., Davidson E.A., Georgiou K., Hararuk O., He Y., Hopkins F., Luo Y., Smith M., Sulman B., Todd-Brown K., Wang Y., Xia J., **Xu X.F.** (2015) Explicitly representing soil microbial processes in Earth system models. *Global Biogeochemical Cycles*. <https://doi.org/10.1002/2015GB005188>.
105. **Xu, X.F.\***, Goswami, S.\*, Gullledge, J., Wullschleger, S.D. & Thornton, P.E. (2015) Interdisciplinary Research in Climate and Energy Sciences. *Wiley Interdisciplinary Reviews: Energy and Environment*. <https://doi.org/10.1002/wene.180>. (**Invited submission**)
106. Wang Y.S., Cheng S.L\*, Fang H.J.\*, Yu G.R., **Xu X.F.**, Xu M.J., Wang L., Li X.Y., Geng J., He S. (2015) Contrasting effects of ammonium and nitrate inputs on soil CO<sub>2</sub> emission in a subtropical coniferous plantation of Southern China. *Biology and Fertility of Soils*, <https://doi.org/10.1007/s00374-015-1028-x>.
107. **Xu, X.F.\***, Elias, D.A., Graham, D.E., Phelps, T.J., Carrol, S.L. & Thornton, P.E.\* (2015) A microbial functional group-based module for simulating methane production and consumption: application to an incubation permafrost soil. *Journal of Geophysical Research-Biogeosciences*, <https://doi.org/10.1002/2015JG002935>.
108. Tian H.\*, Chen G., Lu C, **Xu X.F.**, Ren W, Zhang B., Banger K., Tao B., Pan S., Liu M., Zhang C., Bruhwiler L, Wofsy S. (2015) Global methane and nitrous oxide emissions from terrestrial ecosystems due to multiple environmental changes, *Ecosystem Health and Sustainability* 1: art4. <http://dx.doi.org/10.1890/EHS14-0015.1>.
109. Xu Y., Wang D.\*, Janjusic T., **Xu X.F.**, (2014) A web-based visual analytic system for understanding the structure of Community Land Model. *International Conference on Software Engineering Research and Practice*. 3-9.
110. Wullschleger S.D.\*, Epstein H.E., Box E.O., Euskirchen E.S., Goswami S., Iversen C.M., Kattge J., Norby R.J., van Bodegom P.M., **Xu X.F.** (2014) Plant functional types in Earth system models: past experiences and future directions for application of dynamic vegetation models in high-latitude ecosystems, *Annals of Botany*. <https://doi.org/10.1093/aob/mcu077>. (**Invited Review**) (*ESI highly cited paper*)
111. **Xu X.F.\***, Joshua Schimel, Peter E. Thornton., Xia Song., Fengming Yuan, Santonu Goswami, (2014) Substrate and environmental controls on microbial assimilation of soil organic carbon: a framework for Earth system models. *Ecology Letters*, <https://doi.org/10.1111/ele.12254>.
112. Tian H.Q.\* , Chen G.S., Lu C., **Xu X.F.**, Hayes D.J., Ren W, Pan S., Huntzinger D.N., Wofsy S.C. (2014) North American terrestrial CO<sub>2</sub> uptake largely offset by CH<sub>4</sub> and N<sub>2</sub>O emissions: toward a full accounting of the greenhouse gas budget. *Climate Change*, DOI: <https://doi.org/10.1007/s10584-014-1072-9>.
113. Tian H.Q.\* , Chen G., Lu C., **Xu X.F.**, Ren W., Banger K., Zhang B., Tao B., Pan S., Liu M, Zhang C. (2014) Global land-atmosphere exchange of methane and nitrous oxide: magnitude and spatiotemporal patterns, *Biogeosciences Discussions*, 10, 19811-19865. <https://doi.org/10.5194/bgd-10-19811-2013>.
114. Song X., Tian H.\* , **Xu X.F.**, Hui D.F, Chen G.S, Somers G, Marzen L, Liu M.L, (2013) Projecting terrestrial carbon sequestration of the Southern United States in response to climate and atmospheric changes in the 21st century, *Ecosphere* 4(7),88. DOI: <https://dx.doi.org/10.1890/ES12-00398.1>.
115. Song C.\* , Wang L., Tian H.\* , Liu D., Lu C., **Xu X.F.**, Zhang L., Wan Z., (2013) Effects of continued nitrogen enrichment on greenhouse gas emissions from a wetland ecosystem in

- the Sanjiang Plain, Northeast China: a 5-year nitrogen addition experiment, *Journal of Geophysical Research-Biogeosciences*. <https://doi.org/10.1002/jgr.20063>.
116. **Xu X.F.\***, Thornton P., Post W.M, (2013) A global analysis of soil microbial biomass carbon, nitrogen, and phosphorus in terrestrial ecosystems, *Global Ecology and Biogeography*, 22, 737-749. <https://doi.org/10.1111/geb.12029>. (*ESI highly cited paper*)
117. Tao B., Tian H.Q\*, Chen G.S., Ren W, Lu C.Q, Alley K.D., **Xu X.F.**, Liu M.L., Pan S.F, Virji H, (2013) Terrestrial carbon balance in tropical Asia: contribution from cropland expansion and land management, *Global and Planetary Change*, 100, 85-98. <https://doi.org/10.1016/j.gloplacha.2012.09.006>.
118. **Xu X.F.**, Tian H.Q\* (2012) Methane exchange between marshland and the atmosphere over China during 1949-2008, *Global Biogeochemical Cycles*, <https://doi.org/10.1029/2010GB003946>.
119. **Xu X.F.**, Tian H.Q\*, Liu M, Ren W., Chen G, Lu C., Zhang C., (2012) Multiple-factor controls on terrestrial N<sub>2</sub>O flux over North America from 1979 through 2010. *Biogeosciences*, 9, 1351-1366. <https://doi.org/10.5194/bg-9-1351-2012>.
120. Tian H.Q\*, Lu C.Q., Chen G.S., Tao B., Pan S.F., Del Grosso S.J, **Xu X.F.**, Bruhwiler L., Wofsy S.C., Kort E.A., Prior S.A. (2012) Contemporary and projected biogenic fluxes of methane and nitrous oxide in North American terrestrial ecosystems, *Frontier in Ecology and the Environment*, 10, 528-536, <https://doi.org/10.1890/120057>.
121. Song C.C.\*, **Xu X.F.\*** (Equal contribution), Sun X.X, Tian H.Q, Sun L, Miao Y.Q, Wang X.W, Guo Y.D, (2012) Large methane emission upon spring thaw from natural wetlands in northern permafrost region, *Environmental Research Letters*, 7, 034009, <https://doi.org/10.1088/1748-9326/7/3/034009>.
122. Wang L, Tian H.Q.\*, Song C.C, **Xu X.F.**, Chen G.S, Ren W. Lu C, (2012) Net exchanges of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O between marshland and the atmosphere in Northeast China as influenced by multiple global environmental changes, *Atmospheric Environment*, 63, 77-85. <https://doi.org/10.1016/j.atmosenv.2012.08.069>.
123. Zhu. W.Q.\*, Tian H.Q. **Xu X.F.** Pan Y.Z., Chen. G.S. (2012) Extension of the growing season due to delayed autumn over mid and high latitudes in North America during 1982-2006. *Global Ecology and Biogeography*, 21, 260-271. <https://doi.org/10.1111/j.1466-8283.2011.00675.x>.
124. Liu M., Tian H.Q.\*, Lu C, **Xu X.F.**, Chen G., Ren W. (2012) Effects of multiple environmental stresses on evapotranspiration and runoff over the eastern China, *Journal of Hydrology*, 426-427, 39-54. <https://doi.org/10.1016/j.jhydrol.2012.01.009>.
125. Lu C.Q, Tian H.Q\*, Liu M.L, Ren W, **Xu X.F.**, Chen G.S., Zhang C. (2012) Effect of nitrogen deposition on China's terrestrial carbon uptake in the context of multi-factor environmental changes, *Ecological Application*, 22, 53-75. <https://doi.org/10.1890/10-1685.1>.
126. Tian H.Q.\* , Lu C.Q, Melillo J, Ren W. Huang Y, **Xu X.F.**, Liu M.L., Zhang C, Chen G.S., Pan S.F., Liu J.Y., Reilly J. (2012) Food benefit and climate warming potential of nitrogen fertilizer uses in China, *Environmental Research Letters* 7(4) 044020, <https://doi.org/10.1088/1748-9326/7/4/044020>.
127. Tian H.Q.\* , Chen G.S, Zhang C., Liu M.L, Sun G., Chappelka A., Ren W., **Xu X.F.**, Lu C.Q., Pan S.F., Chen H., Hui D.F., McNulty S., Lockaby G., Vance E. (2012) Century-scale responses to ecosystem carbon storage and flux to multiple environmental changes in the southern United States, *Ecosystems*, <https://doi.org/10.1007/s100021-012-9539-x>

128. Miller S.M\*, Kort E.A, Hirsch A.I, Dlugokencky E.J, Andrews A.E, **Xu X.F**, Tian H.Q, Nehrkorn T, Eluszkiewicz, Michalak A.M, Wofsy S.C, (2012) Regional sources of nitrous oxide over the United States: seasonal variation and spatial distribution, *Journal of Geophysical Research*, <https://doi.org/10.1029/2011JD016951>.
129. Zhang C., Tian H.Q\*, Chen G.S., Chappelka A., **Xu X.F**, Ren W., Liu M.L., Lu C.Q., Pan S.F, Lockaby G, (2012) Impacts of urbanization on carbon balance in terrestrial ecosystems of the Southern United States, *Environmental Pollution*, <https://doi.org/10.1016/j.envpol.2012.01.020>.
130. **Xu X.F**, Tian H.Q\*, Miao S.L, Pan Z.J., Thomas C. (2011) Modeling ecosystem responses to prescribed fires in a phosphorus-enriched Everglades wetland: II. Phosphorus dynamics and community shift, *Ecological Modeling*, 222, 3942-3956. <https://doi.org/10.1016/j.ecolmodel.2011.09.003>.
131. Tian H\*, **Xu X.F**, Lu C, Liu M, Ren W, Chen G, Melillo J, Liu J (2011) Net exchanges of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O between China's terrestrial ecosystems and the atmosphere and their contributions to global climate warming, *Journal of Geophysical Research-Biogeosciences*, 116. <https://doi.org/10.1029/2010JG001393>.
132. Song C.C.\*, Liu D.Y., Song Y.Y., Yang G.S., Wan, Z.M., Li Y.C., **Xu X.F**. (2011) Effect of exogenous phosphorus addition on soil respiration in *Calamagrostis angustifolia* freshwater marshes of Northeast China, *Atmospheric Environment*, 45, 1402-1406. <https://doi.org/10.1016/j.atmosenv.2010.12.030>.
133. Tian H.\*, Lu C. Chen G., **Xu X.F**, Liu M., Ren W., Tao B., Sun G., Pan S., Liu J.(2011) Controls of climate and land use over terrestrial primary productivity, evapotranspiration and water use efficiency in Monsoon Asia during the 20<sup>th</sup> century. *Ecohydrology*, 4, 322-340. <https://doi.org/10.1002/eco.216>.
134. Tian H.\*, Melillo J., Lu, C. Kicklighter D., Liu M. Liu J., Ren W., **Xu X.F**, Chen G., Zhang C., Pan S., Running S. (2011) China's terrestrial carbon balance: contributions from multiple global change factors. *Global Biogeochemical Cycles*, 25, GB1007, <https://doi.org/10.1029/2010GB003838>.
135. Tao. B., Tian H.Q.\* , Chen G.S., Ren W., Lu C.Q., Alley K.D, **Xu X.F**, Liu M., Pan S., Virj H. (2011) Changes in carbon fluxes and pools induced by cropland expansion in South and Southeast Asia in the 20<sup>th</sup> century., *Biogeosciences Discussion*, 8, 11979-12012. <https://doi.org/10.5194/bgd-8-11979-2011>.
136. Ren W., Tian H.Q.\* , **Xu X.F**, Liu, M.L., Lu C.Q., Chen G.S., Melillo J., Reilly J., Liu J.Y. (2011) Spatial and temporal patterns of CO<sub>2</sub> and CH<sub>4</sub> fluxes in China's croplands in response to multifactor environmental changes. *Tellus B*, 63B, 222-240. <https://doi.org/10.1111/j.1600-0889.2010.00522.x>.
137. Ren W. Tian. H.Q\*, Tao B., Chappelka. A., Sun G., Lu C.Q., Liu M.L., Chen G.S., **Xu X.F**. (2011) Impacts of tropospheric ozone and climate change on net primary productivity and net carbon exchange of China's forest ecosystems assessed with the dynamic land ecosystem model (DLEM). *Global Ecology and Biogeography*. 20, 391-406. <https://doi.org/10.1111/j.1466-8283.2010.00606.x>
138. **Xu X.F**, Tian HQ\*. Zhang C., Liu M., Ren W., Chen G., Lu C., Bruhwiler, L. (2010). Attribution of spatial and temporal variations in terrestrial ecosystem methane flux over North America. *Biogeosciences*, 7, 3637-3655. <https://doi.org/10.5194/bg-7-3637-2010>.

139. Lu D.\*, **Xu X.F.**, Tian H., Moran E., Zhao M.S., Running S. (2010) The effects of urbanization on net primary productivity in Southeastern China. *Environmental Management*, 46, 404-410, <https://doi.org/10.1007/s00267-010-9542-y>.
140. Tian, H.\*, **Xu, X.F.**, Miao, S., Sindhoj, E., Beltran, B.J., Pan, Z., (2010). Model ecosystem responses to prescribed fires in a phosphorus-enriched Everglades wetland: I. phosphorus dynamics and cattail recovery. *Ecological Modelling* 221, 1252-1266. <https://doi.org/10.1016/j.ecolmodel.2009.12.025>.
141. Tian H.\*, **Xu X.F.**, Liu M., Ren W., Zhang C., Chen G., Lu C. (2010) Spatial and temporal patterns of terrestrial ecosystem CH<sub>4</sub> and N<sub>2</sub>O fluxes in North America during 1979-2008: application of a global ecosystem model. *Biogeosciences*, 7, 2673-2694. <https://doi.org/10.5194/bg-7-2673-2010>
142. Tian, H.\*, Chen, G., Liu, M., Zhang, C., Sun, G., Lu, C., **Xu, X.F.**, Ren, W., Pan, S., Chappelka, A., (2010). Model estimates of net primary productivity, evapotranspiration, and water use efficiency in the terrestrial ecosystems of the southern United States during 1895-2007. *Forest Ecology and Management* 259, 1311-1327. <https://doi.org/10.1016/j.foreco.2009.10.009>. (*ESI highly cited paper*)
143. Bai J.H.\*, Cui B.S., Yang Z.F., **Xu X.F.**, Ding Q.Y., Gao H.F. (2010) Heavy metal contamination of cultivated wetland soils along a typical plateau lake from southwest China. *Environmental Earth Sciences*, 59(8), 1781-1788. <https://doi.org/10.1007/s12665-009-0160-Z>.
144. Tian H. Q.\*, Liu M., Zhang C. Ren W. **Xu X. F.** Chen G. S. Lu C. Tao B. (2010) The Dynamic Land Ecosystem Model (DLEM) for simulating terrestrial processes and interactions in the context of multifactor global change. *Acat Geographica Sinica*, 65(9), 1027-1047. (In Chinese with English abstract)
145. Duan H.T.\*, Ma R.H., **Xu X.F.\***, Kong F.X., Zhang S.X., Kong W.J., Hao J.Y., Shang L.L. (2009) 2-Decade reconstruction of algae blooming in China's Lake Taihu. *Environmental Science and Technology*, 43, 3522-3528. <https://doi.org/10.1021/es8031852> (*ESI highly cited paper*)
146. Song C.C.\*, **Xu X.F.**, Tian H.Q\*, Wang Y.Y. (2009) Ecosystem-atmosphere exchange of CH<sub>4</sub> and N<sub>2</sub>O and ecosystem respiration in wetlands in the Sanjiang Plain, Northeastern China. *Global Change Biology*. 15, 692-705. <https://doi.org/10.1111/j.1365-2486.2008.01821.x>.
147. Bai J.H.\*, Cui B.S., **Xu X.F.**, Ding Q.Y., Gao H.F. (2009). Heavy metal contamination in riverine soils upstream and downstream of a hydroelectric dam on the Lancang River, China, *Environmental Engineering Science*, 26(5), 941-946. <https://doi.org/10.1089/ees.2008.0136>.
148. **Xu X.F.\***, Tian H., and Hui D. (2008) Convergence in the relationship of CO<sub>2</sub> and N<sub>2</sub>O exchanges between soil and atmosphere within terrestrial ecosystems, *Global Change Biology*. 14(7): 1651-1660. <https://doi.org/10.1111/j.1365-2486.2008.01595.x>.
149. **Xu X.F.**, Tian H.\*, and Wan S. (2007) Climate warming impacts on carbon cycling in terrestrial ecosystem. *Journal of Plant Ecology*, 31(2): 175-188. (In Chinese with English abstract)
150. Tian H.\*, **Xu X.F.**, Song X. (2007) Drought impacts on terrestrial ecosystem productivity. *Journal of Plant Ecology*, 31(2): 231-241. (In Chinese with English abstract)
151. Ren, W., Tian H.\*, Liu, M., Zhang, C., Chen, G., Pan, S., Felzer, B. and **Xu XF** (2007), Effects of tropospheric ozone pollution on net primary productivity and carbon storage in

- terrestrial ecosystems of China. *Journal of Geophysical Research - Atmosphere* 112, D22S09, <https://doi.org/10.1029/2007JD008521>.
152. Zhang L., Song C.\*, Wang D, Wang Y., **Xu X.F.** (2007). The variation of methane emission from freshwater marshes and response to the exogenous N in the Sanjiang Plain, Northeast China. *Atmospheric Environment*, 41: 4063-4072.
153. Jin Y.M, **Xu X.F.**, Xu H. (2007) Progress on Organic Carbon in Rhizosphere Micro-ecosystem, *Hubei Agricultural Sciences*, 46(4), DOI: 10.3969/j.issn.0439-8114.2007.04.060. (In Chinese with English Abstract)
154. Zhang L, Song C\*, Wang D, **Xu X.F.** (2006) Research advances for the effects of nitrogen input on terrestrial ecosystem carbon pool, *Chinese Journal of Soil Science*, 37(2): 356-361. (In Chinese with English Abstract)
155. **Xu X.F.**\*, C Song, X Song. (2005) Linking of Microorganisms to Carbon Dioxide, Methane and Nitrous Oxide Dynamics. *Acta Ecologica Sinica*, 25(1): 182-187.
156. Song X. \*, Liu Y., **Xu X.F.** (2005) Evaluating the measurement results of eddy covariance system at two heights using two methods. *Journal of graduate school to Chinese Academy of Sciences*, 22(3): 386-393.
157. Bai J.H.\*, Ouyang H, Wang Q.G., Zhou C.P, **Xu X.F.** (2005) Spatial variations in daily average CO<sub>2</sub> concentrations above wetland surface of Xianghai National Nature Reserve, China, *Journal of Environmental Sciences*, 17(1), 54-58.
158. **Xu X.F.**\*, Song C, Song X. (2004) Study on Carbon Mineralization and the Related Enzyme Activity. *Ecology Environment*. 13(1): 40-42.
159. Song C.C\*, Yang W.Y, **Xu X.F.**, Lou Y.J., Zhang J.B. (2004) Dynamics of CO<sub>2</sub> and CH<sub>4</sub> concentration in the mire soil and its impact factors. *Environmental Science*, 25(4): 1-6. (In Chinese with English abstract)
160. **Xu X.F.**\*, Song C, Song X. (2004) Limitation of Available Carbon on Microbial Respiration in the *Calamagrostis Angustifolia* Soil. *Journal of Graduate School to Chinese Academy of Sciences*, 21(4): 538-542.
161. **Xu X.F.**\*, Song C. (2004) Advances of the research on missing sink in global carbon cycling. *Journal of Graduate School to Chinese Academy of Sciences*, 21(2): 152-159. (In Chinese with English abstract)
162. **Xu X.F.**\*, Song C, Song X. Yang. H. (2004) Effect of carbon availability on microbial activity in *Calamagrostis angustifolia* soil. *Wetland Science*. 2(1): 68-73.
163. Song X\*, Liu Y, **Xu X.F.** (2004) Comparison study on carbon dioxide, water and heat fluxes of the forest ecosystem in red earth hilly zone over winter and spring. *Resources Science*, 26(3): 96-104. (In Chinese with English abstract)
164. **Xu X.F.**\*, Song C, Song X, Wang G. Zhang Y. (2003) Comparison of the alkali marsh soil and agricultural soil on nutrient retention in Western Jilin, China. *Wetland Science*. 2(2): 147-152.
165. Song X, Liu Y\*, **Xu X.F.** (2003) Comparison of Static Chamber and Eddy Covariance on Carbon Flux Measuring. *Jiangxi Science*, (3):206-210. (In Chinese with English abstract)
166. Bai J\*, W Deng W, Fang H, **Xu X.F.** (2002) Spatial Variation of Pb in the Soil-plant System of Vertical Zone in Changbai Mountain National Nature Reserve. *Journal of Environmental Sciences*. 14(3): 325-333. (In Chinese with English abstract)



**Datasets**

167. **Xu, X.F.**, Thornton, P.E., Post, M.W. (2014) A Compilation of Global Soil Microbial Biomass Carbon, Nitrogen, and Phosphorus Data. Archived at ORNL-DAAC.  
[https://daac.ornl.gov/SOILS/guides/Global\\_Microbial\\_Biomass\\_C\\_N\\_P.html](https://daac.ornl.gov/SOILS/guides/Global_Microbial_Biomass_C_N_P.html)

**Models (archived at my GitHub)**

- Developer of **CLM-Microbe** (<https://github.com/email-clm/clm-microbe>)
- Developer of **Millennial** model (<https://github.com/email-clm/Millennial>)
- Developer of **WEM (Wetland Ecosystem Model)** (<https://github.com/email-clm/WEM>)

**Book Chapter and Meeting Report**

1. Lipson, D.A., **Xu, X.F.** (2019) Integrating Soil Microbiology into Ecosystem Science, Understanding Terrestrial Microbial Communities. Springer, pp. 65-102.
2. Goswami S, **Xu X.F.**, Hayes D. (2015) Four key areas for training the next generation of global change researchers. PeerJ PrePrints 3:e1171  
<https://dx.doi.org/10.7287/peerj.preprints.947v1>
3. Goswami, S., **Xu X.F.**, Hayes D. J. (2013), Reviewing Global Change Research and Recommending Future Priorities, Eos Trans. AGU, 94(46), 426.
4. Tian H.Q., **Xu X.F.**, Miao S.L., Pan Z.J, Thomas C. (2011) Responses of plant biomass and total phosphorus in water and soil to different fire regimes in Everglades' wetlands: a modeling study. In Miao S.L. Thomas C. *Evaluating Natural Recovery and Fire Effects in Phosphorus-Enriched Water Conservation Area 2A*. Fire Project Final Report. West Palm Beach, Florida, USA.
5. Tian H.Q., **Xu X.F.**, Zhang C., Ren W., Chen G.S., Liu M.L., Lu D.S, Pan S. (2008) Forecasting and assessing the large-scale and long-term impacts of global environmental change on terrestrial ecosystems in the United States and China. In: *Real World Ecology: large-scale and long-term case studies and methods*. (Miao S., Carstenn S., and Nungesser M. eds), Springer, New York.
6. Liu, M., Tian H.Q., Zhang C., Chen G., Ren W., **Xu X.F.**, Pan S., Wang X., and Nagy C. (2007). Effects of urbanization and land-use change on water yield – A case study of Haihe Basin in China. Laband, D. (eds) *Emerging Issues Along Urban/Rural Interfaces 2: Linking Land-Use Science and Society*. Conference Proceedings, Atlanta, Georgia, April 9-12, 2007.

**Selected Abstract/Presentation (+ student, ++ postdoc)**

1. Cadillo-Quiroz H., Tauber J., Savage K.E., Fraver S., Watts J., Kahn D., Dietrich Z., Quimetts A., **Xu X.F.**, Dabjani SiHi., Briones V., Ruzoi R., Hettwer C. (2024) High spatial variability of GHG fluxes are linked to microbial community composition in sub-boreal conifer forest. AGU Fall meeting, Washington D.C. Dec 9-13, 2024.
2. Neitlich E., Watts J., Savage K.E., Quimette A., Fraver S., Hettwer C., Sproles E.A., Kahn D., Briones V., Sihi D., Cadillo-Quiroz H., **Xu X.F.**, Brown A., Strong S. (2024) Understanding the role of methane in ecosystem carbon budgets within a sub-boreal conifer forest. AGU Fall meeting, Washington D.C. Dec 9-13, 2024.
3. Kahn A., Savage K., Cadillo-Quiroz H., Fraver S., Watts J., **Xu X.F.**, Sihi D. (2024) Quantifying gross rates of methane production and consumption in a northern forest. AGU Fall meeting, Washington D.C. Dec 9-13, 2024.

4. Guo N., Zheng J.Q., Lipson D., **Xu X.F.** (2024) Post-fire microbial dynamics in semiarid ecosystem. AGU Fall meeting, Washington D.C. Dec 9-13, 2024.
5. Yuan F.H., Chen N., Wang X.W., Song C.C., **Xu X.F.** (2024) Northern peatland vegetation unfazed by atmospheric drought. AGU Fall meeting, Washington D.C. Dec 9-13, 2024.
6. Hettwer C, Fraver S, Savage K.E., Cadillo-Quiroz H., Watts J., **Xu X.F.**, Sihi D.. Methane flux from living and dead tree stems in a northern conifer forest, USA, AGU Fall meeting, Washington D.C. Dec 9-13, 2024.
7. **Xu X.F.** Ecology meets Math: Ecological Modeling at Multiple Scales. Utah State University Ecology Center. Logan, UT, Dec 4, 2024. (**Invited**)
8. **Xu X.F.**, Zhao H., Watts J., Savage K., Fraver S., Sihi D., Cadillo-Quiroz H., Ouimette A. (2024) Integrating multiple observational data with the CLM-Microbe model to understand CH<sub>4</sub> cycling in the Howland Forest. Methane uptake and dynamics workshop, Howland Research Forest, Orone, MA, Aug 14-15, 2024.
9. **Xu X.F.**, He L.Y., Lipson D., Cleland E. (2024) Fires and plant invasion led to soil carbon loss with different mechanisms in Mediterranean shrubland in the 21s century: a modeling study. ESA annual meeting. Long Beach, CA, Aug 4 – 9, 2024
10. Qian A., **Xu X.F.**, (2024) Bird abundance and its environmental controls in major ecosystems across the U.S. ESA annual meeting. Long Beach, CA, Aug 4 – 9, 2024.
11. Zhang E., Xu G., Yang J., **Xu X.F.**, (2024) State-level Mortality of COVID-19 and its Association with Other Infectious Diseases and Climate Variables Across the United States. ESA annual meeting. Long Beach, CA, Aug 4 – 9, 2024.
12. Xu G., Muller V., Xu. H., **Xu X.F.**, (2024) Trade-off between COVID-19 and influenza infection under changing climate across US., ESA annual meeting. Long Beach, CA, Aug 4 – 9, 2024.
13. Yang E., **Xu X.F.**, (2024) Macroecology of mosquitoes in natural ecosystems across the United States. ESA annual meeting. Long Beach, CA, Aug 4 – 9, 2024.
14. Zhao N., **Xu X.F.** (2023) Microbial cell density and its environmental controls in 34 aquatic ecosystems across U.S. AGU annual fall meeting, San Francisco, CA, Dec 11-15.
15. Shi X.Y., Ricciuto D.M., Wang Y.P., Hanson P.J., Mao J.F., Luo Y.Q., **Xu X.F.**, Hui D.F., He H.X., Shao S., Hussain A., Sun Q., Qiu C., Akihiko A., Melton J., Burke E., Joos F., Zhou J. (2023) SPRUCE-MIP: model intercomparison of northern peatland carbon cycle over the SPRUCE site. AGU annual fall meeting, San Francisco, CA, Dec 11-15.
16. **Xu X.F.**, Watts J., Savage K. E., Fraver S., Sihi D., Cadillo-Quiroz, H., Zhao Hongyi., Ouimette A. (2023) Microbial roles in CH<sub>4</sub> cycling in a sub-boreal forest: integrating multiple-source observational data with the CLM-Microbe model. AGU annual fall meeting, San Francisco, CA, Dec 11-15.
17. He L.Y., **Xu X.F.** (2023) Growing fungal and bacterial biomass carbon in North America during 1901-2016 as simulated by CLM-Microbe. AGU annual fall meeting, San Francisco, CA, Dec 11-15.
18. **Xu X.F.**, Zhu X., He L.Y., Wang Y.H., Zuo Y.J., Guo Z.Y., Wang N.N. (2023) A microbial data system to support microbial modeling: case studies with CLM-Microbe. ESA annual meeting. Portland, OR, Aug 6 – 11, 2023.
19. Yuan F.H., Ricciuto D.M., Roman D.T., Wood J.D., **Xu X.F.**, Lilleskov E., Lafuente A., Chimner R., Herboualch K., Bourgeau-Chavez L, Cadillo-Quiroz H., Kolka R.K., Fachin L., Griffis T.J. (2022) Spatiotemporal Heterogeneity of Methane Emissions in Peruvian

- Amazonian Peatlands: A Modeling Approach. AGU annual fall meeting. Chicago, Dec 12-16.
20. He L.Y.++, Rodrigues J.L.M., Mayes M.A., Lai C., Lipson D., Xu X.F., (2022) Microbial roles in the terrestrial carbon dynamics during 1901-2016 as simulated by the CLM-Microbe model, AGU annual fall meeting. Chicago, Dec 12-16.
  21. Hanson P.J., Phillips J.R., Iversen C.M., Ricciuto D.M., Yuan F.++, Zhang J.W.+, Xu X.F. (2022) Drought-induced reductions in net methane emissions from an ombrotrophic peatland are enhanced across a range of experimental warming treatments. The General Assembly of the European Geosciences Union (EGU), Vienna, Austria, 25-27 May.
  22. Zhang A.+, Bao M.+, Xu X.F. (2022) Biogeographic patterns of root carbon and nitrogen and their controls across U.S. 10<sup>th</sup> Biennial Conferences of International Biogeography Society, Vancouver Canada. January 8 – 12.
  23. Xu X., Zhang J.+, Yuan F.H.++, Ricciuto D.M., Hanson P.J., Shi X.Y., Bridghman S., Keller J., Thornton P.E. (2022) Drought impacts on methane emission in a temperate peatland under warming and elevated CO<sub>2</sub>. SPRUCE All-hands meeting, May 35, zoom virtual meeting.
  24. Yuan F.++, Ricciuto D., Xu X., Feng X., Kolka R., Sebestyen S., Roman D., Griffis T. (2022) Comparisons of ELM simulations of methane emission from fen and bog peatlands in northern Minnesota. SPRUCE All-hands meeting, May 35, zoom virtual meeting.
  25. Yuan F.H.++, Ricciuto D.M., Xu X.F., Roman D.T., Wood J.D, Lilleskov E., Cadillo-Quiroz H., Kolka R.K., Fachin L., Griffis T.J. (2021) Improving the E3SM Land Model Simulations of Carbon Fluxes for an Amazonian Palm Swamp Peatland, AGU annual fall meeting. New Orleans, Dec 12-17.
  26. Abramoff, R.Z.\*, Guenet B., Zhang H.C., Georgiou K., Xu X.F., Viscarra Rossel R.A., Yuan W.P., Ciais P. (2021) Improved Global-Scale Predictions of Soil Carbon Stocks with Millennial Version 2, AGU annual fall meeting. New Orleans, Dec 12-17.
  27. +He L.Y., Xu X.F., (2021) Macroecology of soil fungi and bacteria in the United States using a data-model integration approach, AGU annual fall meeting. New Orleans, Dec 12-17.
  28. Xu X.F. (2021) Simulating microbial mechanisms for soil C and methane dynamics with the CLM-Microbe model, CESM biogeochemistry working group, June 17, zoom virtual meeting
  29. Xu X.F. (2021) ELM\_SPRUCE model on isotope methane, SPRUCE All-hands meeting, May 12-14, zoom virtual meeting.
  30. Xu X.F. (2021) Explicitly representing microbial biogeochemistry in an Earth system modeling framework, Oak Ridge National Laboratory Virtual Seminar Series. March 29 zoom virtual presentation. (**invited**).
  31. Xu X.F. (2020) Modeling isotope methane dynamics, SPRUCE All-hands meeting, May 11-13, zoom virtual meeting.
  32. He L.Y.+, Lipson D., Rodrigues J.L., Mayes M.A., Bjork R.G., Glasser B., Thornton P.E. Xu X.F. Dynamics of fungal and bacterial biomass carbon in natural ecosystems: site-level applications of the CLM-Microbe model. AGU annual fall meeting, San Francisco, December 6 – 12. 2020.
  33. Yuan F.H.++, Ricciuto D., Xu X.F., Roman D.T., Wood J.D., Lilleskov E., Fachin L., Kolka R.K., Griffis T.J. Modeling methane emissions in an Amazonian palm swamp peatland with the E3SM land model. AGU annual fall meeting, San Francisco, December 6 – 12. 2020.

34. Mayes M.A., Sihi D., **Xu X.F.**, Ortiz M.S., O'Connell C., Silver W.L., Lopez-Lloreda C. Modeling methane emission in anaerobic microsite along a Catena in Puerto Rico. AGU annual fall meeting, San Francisco, December 6 – 12. 2020.
35. Shi X.Y., Ricciuto D., Thornton P.E., **Xu X.F.**, Yuan F.M., Norby R., Walker A., Warren J., Mao J.F., Hanson P.J., Meng L., Weston D.J., Griffiths N. Carbon cycle warming and elevated CO<sub>2</sub> responses in a northern temperate bog: a modeling study using ELM\_SPRUCE. AGU annual fall meeting, San Francisco, December 6 – 12. 2020.
36. **Xu X.F.**, Ricciuto D.M., Wang Y.H., Shi X.Y., Warren J., Brehme T., Bridghma S.D., Keller J., Chanton J., Yuan F.M., Yuan F.H., Hanson P.J. Vegetation regulation of warming impacts on belowground C cycling and methane emission in a temperate peatland. AGU annual fall meeting, San Francisco, December 6 – 12. 2020.
37. Yang O., He L.Y., **Xu X.F.** (2020) Soil microbial community shift and its edaphic controls across US. ESA annual meeting, Salt Lake City. August 2-7.
38. **Xu X.F.** Microbial macroecology: a new direction in global change science. Lanzhou virtual seminar. June 28, 2020. (invited)
39. **Xu X.F.** (2020) updates of isotope methane modeling with ELM\_SPRUCE, SPRUCE project methane workshop, February 12-13, Oak Ridge, TN.
40. Ma S., Wilson R., Chanton J., Bridgham S.D., Iversen C.M., Malotra A., Jiang J., Lu X.J., Keller J., **Xu X.F.**, Ricciuto D.M., Hanson P., Luo Y.Q. (2019) Constraining methane emission pathways via model structure selection and parameter estimation with flux and concentration data in a northern peatland, AGU annual fall meeting, Dec 9-13. DC, 2019.
41. **Xu X.F.**, ++Yuan F.H., +Wang Y.H., Ricciuto D., Shi X.Y., Yuan F.M., Hanson P.J., Thornton P.E., Warming and elevated CO<sub>2</sub> stimulated CH<sub>4</sub> emission with different mechanisms in a peatland. ESA annual meeting, Louisville, KY, Aug 11-16, 2019.
42. +Wang Y.H., ++Yuan F.H., Yuan F.M., Gu B., Hahn M., Torn M, Ricciuto D.M., Kumar J., +He L., Zona D., Oechel W., Lipson D., Wullschleger S.D., Thornton P.E., **Xu X.F.** Mechanistic modeling of microtopographic impacts on CH<sub>4</sub> and CO<sub>2</sub> fluxes in an Alaskan tundra ecosystem using the CLM-Microbe model. ESA annual meeting, Louisville, KY, Aug 11-16, 2019.
43. ++Yuan F.H., Ricciuto D.M., Shi X., Yuan F., Hanson P.J., Thornton P.E., **Xu X.F.** Warming and elevated CO<sub>2</sub> stimulate CH<sub>4</sub> emission with different mechanisms in a temperate peatland. ESA annual meeting, Louisville, KY, Aug 11-16, 2019.
44. Sihi D., Mayes M.A., O'Connell C., **Xu X.F.**, Silver W.L., Lopez-Lloreda C., Yudkin B., Quinn R., Zheng J., Brenner J., Phillips J.R., Gonzalez G., Newman B.D. Evaluating a Microbial Functional Group-based Model to Explain Greenhouse Gas Productions and Consumptions from Puerto Rican Tropical Forest Soils, AGU annual fall meeting, Dec 10-14. DC, 2018.
45. Natali S. .. **Xu X.F.** .... A pan-arctic synthesis of nongrowing season respiration: key drivers and responses to a changing climate, AGU annual fall meeting, Dec 10-14. DC, 2018.
46. **Xu X.F.** (2018) Integrating Multi-Source Datasets with Models to Understand Terrestrial Biogeochemistry in a Changing Environment, Harbin Institute of Technology, Harbin, July 1st. (Invited)
47. **Xu X.F.** (2018) Integrating Multi-Source Datasets with Models to Understand Terrestrial Biogeochemistry in a Changing Environment, Harbin Normal University, Harbin, July 1st. (Invited)

48. Yuan F.H., Shi X.Y., Ricciuto D., Wang Y.H., Thornton P.E., Hanson P., **Xu X.F.** (2018) Mechanistic modeling of CH<sub>4</sub> at SPRUCE-Beyond soil carbon cycling: biophysical feedbacks. 3<sup>rd</sup> SPRUCE all hands meeting, Minneapolis Marriott City Center, Minneapolis, Minnesota, May 9-10, 2018.
49. Yuan F.M., Wang G.S., Painter S.L., Tang G.P., **Xu X.F.**, Kumar J., Bisht G., Hammond G.E., Mills R.T., Thornton P.E., Wullschleger S.D. Effect of Freeze-Thaw Cycles on Soil Nitrogen Reactive Transport in a Polygonal Arctic Tundra Ecosystem at Barrow AK Using 3-D Coupled ALM-PFLOTRAN AGU annual fall meeting, Dec 10-16. New Orleans, 2017.
50. **Xu X.F.**, Song C.C., +Wang Y., Ricciuto D.M., Lipson D., Shi X.Y., Zona D., ++Song X., Yuan F.M., Oechel W.C., Thornton P.E. A microbial biogeochemistry network for soil carbon and nitrogen cycling and methane flux: model structure and application to Asia. AGU annual fall meeting, Dec 10-16. New Orleans, 2017.
51. Shi X., Ricciuto D.M., Thornton P.E., Hanson P.J., **Xu X.F.**, Mao J.F., Warren J., Yuan F.M., Norby R.J., Sebestyen S., Griffiths N., Weston D.J., Walker A. Representing Northern Peatland Hydrology and Biogeochemistry with ALM Land Surface Model. AGU annual fall meeting, Dec 10-16. New Orleans, 2017.
52. Lund M., Zona, D., Jackowicz-Korczynski, M., **Xu X.F.** Partitioning net ecosystem exchange of CO<sub>2</sub> into gross primary production and ecosystem respiration in northern high-latitude ecosystems. AGU annual fall meeting, Dec 10-16. New Orleans, 2017.
53. **Xu X.F.** (2017) Integrating Multi-Source Datasets with Models to Understand Terrestrial Biogeochemistry in a Changing Environment, Institute of Applied Ecology, Chinese Academy Sciences, Shenyang, August 18<sup>th</sup>. (**Invited**)
54. **Xu X.F.**, (2017) Data-model Integration to Understand Wetland Biogeochemistry, Nanjing Institute of Geography and Limnology, Nanjing, August 14<sup>th</sup>. (**Invited**)
55. **Xu X.F.**, (2017) Development and Application of Ecological Models at Multiple Scales: A Case Study of CLM-Microbe, East China Normal University, Shanghai, August 12<sup>th</sup>. (**Invited**)
56. **Xu X.F.**, (2017) Development and application of CLM-Microbe at multiple scales, Institute of Geographic Sciences and Natural Resources Research, Beijing, July 26<sup>th</sup>. (**Invited**)
57. **Xu X.F.** (2017) Integrating Models with Multi-Source Datasets to Understand Terrestrial Biogeochemistry in a Changing Environment, Chinese Academy of Agricultural Sciences, Beijing, July 23<sup>rd</sup>. (**Invited**)
58. **Xu X.F.**, (2017) Development and application of CLM-Microbe at multiple scales. 3<sup>rd</sup> Young Ecologists forum in China, Xining, Qinghai, July 14-18.
59. **Xu X.F.**, Ricciuto D., Shi X.Y., +Wang Y., ++Song X., Thornton P., Hanson P.J., Chanton J., Bridgman S., (2017) Mechanistic modeling of CH<sub>4</sub> at SPRUCE: microbial biogeochemistry along soil profile vs. surface flux, 2<sup>nd</sup> SPRUCE all hands meeting, The St. Paul Hotel, St. Paul, Minnesota, May 10-11, 2017.
60. **Xu X.F.**, ++Zhang X.C., Ricciuto D.M., Hahn M.S., Hanson P.J., Kumar J., Lipson D., ++Ma C., Shi X.Y., ++Song X., Tang G., Thornton P.E., Torn M.S., Wullschleger S.D., Yuan F.M., Oechel W.C., Zona D. Improved Understanding of Methane Dynamics in Alaskan Tundra Ecosystems and a Temperate Peatland Ecosystem by Integrating Observational Data with the CLM-Microbe Model. AGU annual fall meeting, Dec 10-16. San Francisco, 2016.
61. Mayes M.A., Wang G.S., Abramoff, R.Z., **Xu X.F.**, Hartman M.D., Feng W., Davidson E., Finzi A., Moorhead D., Schimel J., O'Brien S., Thornton P.E. Measurable Pools of Soil

- Carbon for Carbon Cycle Modeling. AGU annual fall meeting, Dec 10-16. San Francisco, 2016.
62. ++Ma C., ++Zhang X.C., ++Song X., **Xu X.F.** Dynamics of Active Layer Depth across Alaskan Tundra Ecosystems. AGU annual fall meeting, Dec 10-16. San Francisco, 2016.
  63. ++Zhang X.C., ++Ma C., Song X., ++Gao LP., Liu M.L., **Xu X.F.** Climate Change Predominantly Caused U.S. Soil Water Storage Decline from 2003 to 2014. AGU annual fall meeting, Dec 10-16. San Francisco, 2016.
  64. Yuan F.M., Painter S.L, Thornton P.E., **Xu X.F.**, Tang G.P., Kumar J., Bisht G., Hammond G.E., Mills R.T., Wullschleger S.D. Evaluating an Explicitly Coupled 3-D Soil Thermal-Hydrology and Carbon Nitrogen Reactive Transport Land Surface Model - CLM-PFLOTRAN. AGU annual fall meeting, Dec 10-16. San Francisco, 2016.
  65. Hanson P.J., Gutknecht J., **Xu X.F.**, TH15A: Highlights from the SPRUCE project: initial results from an ecosystem-scale warming and elevated-CO<sub>2</sub> manipulation in a Northern Peatland. AGU annual fall meeting, Dec 10-16. San Francisco, 2016.
  66. **Xu X.F.**, Ricciuto D., Si X.Y., Hanson P.J., Wullschleger S.D., Thornton P.E., Chanton J., Bridgham S., (2016) CH<sub>4</sub> modeling for the SPRUCE project: model development and preliminary application, 1<sup>st</sup> SPRUCE all hands meeting, The St. Paul Hotel, St. Paul, Minnesota, May 10-11, 2016.
  67. **Xu X.F.**, Yuan F.M., Hanson P.J., Wullschleger, S.W., Thornton P.E., Tian H.Q., Riley W., Song X., Graham D., Song C. (2015) Four decades of modeling methane cycling in terrestrial ecosystems: Where we are heading? AGU Annual Fall Meeting, Dec 14-18, San Francisco.
  68. Yuan F.M., Thornton P.E., Tang G.P., **Xu X.F.**, Kumar J., Iversen C., Bisht G., Hammond G., Mills R., Wullschleger, S. (2015) Effects of Spatial N nutrient mobility relevant to plants, soils and microtopography on plant growth and soil organic matter accumulation by using coupled CLM-PFLOTRAN biogeochemical model in an Area in N-GEE-Arctic Intensive Study Sites, Barrow, AK. AGU Annual Fall Meeting, Dec 14-18, San Francisco.
  69. Shi X., Ricciuto D., **Xu X.F.**, Thornton P.E., Hanson P., Mao J.F., Sebestyen S., Griffiths N. (2015) Representing Northern Peatland Hydrology and Biogeochemistry within the Community Land Model. AGU Annual Fall Meeting, Dec 14-18, San Francisco.
  70. Song X., **Xu X.F.**, Tweedie C., (2015) Impacts of Precipitation Diurnal Timing on Ecosystem Carbon Exchanges in Grasslands: A Synthesis of AmeriFlux Data. AGU Annual Fall Meeting, Dec 14-18, San Francisco.
  71. **Xu X.F.** (2015) Scaling up microbial mechanisms from molecule to global scale: data guide models or models inspire experiments? 100<sup>th</sup> ESA Annual Meeting. Baltimore, August 9-14. **(Invited)**
  72. **Xu X.F.** (2015) Understanding Terrestrial Ecosystems in the Context of Global Change across Multiple Scales: A Data-Model Integration Approach. East China Normal University, Shanghai, July 1. **(Invited)**
  73. **Xu X.F.** (2015) Understanding Terrestrial Biogeochemistry in a Changing Environment: A Model-Data Integrating Approach, Northeast Institute of Geography and Agricultural Ecology, Changchun, June 29. **(Invited)**
  74. **Xu X.F.** (2015) Understanding Terrestrial Biogeochemistry in a Changing Environment: A Model-Data Integrating Approach, Beijing Normal University, Beijing, June 23. **(Invited)**
  75. **Xu X.F.** (2015) Four Decades of Modeling Methane in Terrestrial Ecosystems: Where we are heading? Institute of Botany, Beijing, June 19. **(Invited)**

76. **Xu X.F.** (2015) Model-data integration to understand terrestrial biogeochemistry across multiple scales, 119<sup>th</sup> China Ecological Forum, Institute of Geography and Natural Resource Research, Beijing, June 18. **(Invited)**
77. **Xu X.F.** (2015) Understanding Terrestrial Ecosystems in the Context of Global Change across Multiple Scales: A Data-Model Integration Approach. University of Texas at El Paso, Bioinformatics Colloquium, April 10. **(Invited)**
78. Yuan F.M., Tang G.P., **Xu X.F.**, Kumar J., Bisht G., Hummond G., Thornton P., Mills R., Wullschleger S. (2014) Explicitly Synchronizing Soil Water and Carbon Nitrogen Reactive Transport Using CLM-PFLOTTRAN: Does Sequential or Synchronized Implementing of Soil Processes Matter to Soil C Stocks? 2014 AGU Annual Fall meeting.
79. Song X., Hoffman F., **Xu X.F.**, Iversen C., Kumar J. (2014) Above-belowground carbon allocation in Earth system models. 2014 AGU Annual Fall meeting.
80. **Xu X.F.**, Hahn M., Kumar J., Yuan F.M., Tang G.P., Thornton P., Torn M., Wullschleger S. (2014) Upscaling plot-scale methane flux to an eddy covariance tower domain in Barrow, AK: integrating in-situ data with a microbial functional group-based model. 2014 AGU Annual Fall meeting.
81. **Xu X.F.**, Thornton P.E., Allison S., Wieder W., Mayes M.A., Jagadamma, S. (2014) Microbes as a living component of the complex soil system: data and models. Complex Soil System Conference, David Brower Center, Berkeley, CA, Sep 3-5.
82. Thornton P.E., Mayes, M.A., Tang G.P., **Xu X.F.**, Wang G.S., Yang X.J. (2014) Observational and experimental constraints on global scale microbial models to improve climate prediction. Ecological Society of America Annual Meeting, Sacramento, CA, August 9-15.
83. **Xu X.F.**, Thornton P.E., Tian H.Q., Wullschleger S.D. (2014) Developing next-generation trace gas models: challenges and direction. Ecological Society of America Annual Meeting, Sacramento, CA, August 9-15.
84. **Xu X.F.**, Schimel J.P., Song X., Thornton P.E. (2014) Global Distribution and Turnover of Soil Microbial Biomass Carbon: Data and Models. RCN FORECAST Workshop 2014: Representing Soil Carbon Dynamics in Global Land Models to Improve Future IPCC Assessments. June 11-14, 2014, Breckenridge, CO.
85. **Xu X.F.**, Hanson, P.J., Ricciuto D., Phillips J.R., Shi X.Y., Riggs R.S., Iversen C.M., Weston D.J., Hook L.A., Thornton P.E. (2014) Integrating In-situ Data with a Model for Examining Community-level CO<sub>2</sub> and CH<sub>4</sub> flux in a Carbon-rich Peatland in Northern Minnesota, DOE-TES/DOE-SBR Joint PI Meeting, Potomac, MD, May 6-7, 2014.
86. **Xu X.F.** (2014) Data-mode integration for improving belowground biogeochemistry-climate feedback in Earth system models, ORNL Mini-Workshop, Oak Ridge, TN, April 16, 2014 **(Invited)**
87. **Xu X.F.** (2014) Quantifying terrestrial ecosystem responses and feedback to the climate system across multiple scales: a Data-Model Integration Approach, San Diego State University, San Diego, CA, March 25 **(Invited)**
88. **Xu X.F.**, Thornton P.E., Graham D.E., Elias D.A., Phelps T.J, Hahn M, Torn M, Wullschleger S.D., Hanson P.J. (2014) Next generation methane modules for Earth System Models. Oak Ridge National Lab, CCSI SAB meeting poster section, Oak Ridge, TN, USA, March 12th.
89. **Xu X.F.** (2014) Ecological Modeling for Terrestrial and Aquatic Systems: a Data-Model Integration Approach, University of Texas at El Paso, El Paso, TX, February 13 **(Invited)**

90. **Xu X.F.**, Thornton P.E., Graham D.E., Elias D.A., Phelps T.J, Hahn M, Torn M, Wullschleger S.D. (2013) Land-atmosphere exchange of CH<sub>4</sub> in Barrow, Alaska: Contributions of methanogens and methanotrophy. AGU Fall Meeting. San Francisco 9-13, December 2013.
91. Schimel J, **Xu X.F.**, Lawrence C.R. (2013) Modeling the unmeasurable: scaling soil physiology from microns to meters and seconds to centuries. AGU Fall Meeting. San Francisco 9-13, December 2013. (**Invited**)
92. Zhang B., Tian H., Yang J., **Xu X.F.** (2013) Can methane fluxes from wetland and biomass burning explain global methane anomalies? AGU Fall Meeting. San Francisco 9-13, December 2013.
93. Hanson P.J., Chanton J., Inversen C.M., McFarlane K.J., Tfaily M.M. **Xu X.F.** (2013) Past and future stability of deep peatland carbon stocks: assessing the nature and fate of carbon in a northern Minnesota ombrotrophic peatland. AGU Fall Meeting. San Francisco 9-13, December 2013. (**Invited**)
94. **Xu X.F.**, Schimel J., Thornton P.E, Song X., Yuan F.M, Goswami S. (2013) Substrate and environmental controls on microbial assimilation of soil organic carbon. 98<sup>th</sup> ESA annual meeting, Aug 4-9, Minneapolis, MN.
95. **Xu X.F.**, Schimel J., Thornton P.E, Song X., Yuan F.M, Goswami S. (2013) Substrate and environmental controls on microbial assimilation of soil organic carbon. 1<sup>st</sup> ORNL Postdoc Research Symposium, July 18<sup>th</sup>, Oak Ridge, TN, July 18.
96. **Xu X.F.**, Thornton P.E, Yuan F.M, Graham, D, Elias D.A., Goswami S., Post W.M, Wullschleger S., Boden T.A., Cook R.B., Schimel J, Phelp T.J, Song X., Carroll S.L. (2013) Development of a microbial module, CLM-Microbe in CESM--framework and preliminary results. 18<sup>th</sup> Annual CEM workshop, Brenckridge, CO, USA, June 17-20.
97. **Xu X.F.**, Schimel J, Thornton P.E, Yuan F.M, Goswami S, Song X. (2013) Substrate and environmental controls on microbial assimilation of soil organic carbon: a framework for Earth system models. 18<sup>th</sup> Annual CEM workshop, Brenckridge, CO, USA, June 17-20.
98. **Xu X.F.**, Thornton P.E, Graham, D, Elias D.A., Goswami S., Yuan F.M, Post W.M, Wullschleger S., Boden T.A., Cook R.B., Schimel J, Phelp T.J, Carroll S.L. (2013) Microbial responses and feedbacks to the climate system: development of a microbial module, CLM-Microbe in CESM--framework and preliminary results. Oak Ridge National Lab, CCSI SAB meeting poster section, Oak Ridge, TN, USA, March 6th.
99. **Xu X.F.**, Schimel J., Thornton P.E. (2013) Substrate and environmental controls on microbial assimilation of soil organic carbon: a modeling framework, Oak Ridge National Lab, CCSI SAB meeting poster section, Oak Ridge, TN, USA, March 6th.
100. **Xu X.F.**, Elias D.A., Graham D.E., Phelps T.J, Carroll S.L., Thornton P.E. (2012) Simulating CO<sub>2</sub> and CH<sub>4</sub> production and consumption from incubated permafrost soils: how important are the microbial mechanisms? AGU Fall Meeting. San Francisco 3-7, December 2012.
101. Graham, D.E., Phelps T.J., **Xu X.F.**, Carroll S., Jagadamma S., Shakya M., Thornton P.E., Elias D.A. (2012) Characterization and modeling of microbial carbon metabolism in thawing permafrost. AGU Fall Meeting. San Francisco 3-7, December 2012.
102. **Xu X.F.**, Elias D.A., Graham D.E., Phelps T.J, Carroll S.L., Thornton P.E. (2012) Simulating CO<sub>2</sub> and CH<sub>4</sub> production and consumption from incubated permafrost soils. Oak Ridge National Lab, TN, USA, Sep 10<sup>th</sup>.



103. **Xu X.F.**, Song C., Sun X, Tian H, Sun L, Miao Y, Wang X, Guo Y (2012) Quantifying methane outburst upon spring thaw from natural wetlands in the northern permafrost region. Oak Ridge National Lab, TN, USA, July 2nd.
104. **Xu X.F.**, Thornton P.E., Post W.M. (2012) A global analysis of soil microbial biomass carbon, nitrogen, and phosphorus. ESA 97th annual meeting, Portland, OR, August 6-10.
105. **Xu X.F.**, Thornton P.E., Post W.M. (2012) Global soil microbial biomass C, N, and P: is there a unifying microbial mechanism in assimilating soil C, N, and P. Oak Ridge National Lab, Oak Ridge, TN, USA, February 20<sup>th</sup>.
106. **Xu X.F.**, Thornton P.E., Post, W.M, (2012) A global analysis of soil microbial biomass carbon, nitrogen and phosphorus in terrestrial ecosystems, Oak Ridge National Lab, CCSI SAB meeting poster section, Oak Ridge, TN, USA, January 31<sup>st</sup>.
107. **Xu X.F.** (2011) Rising Methane Emission from Natural Wetlands in the Northern Permafrost Region in the 2000s: Is the Permafrost Methane-Climate Feedback Triggered? Oak Ridge National Laboratory, Oak Ridge, TN, USA, May 25<sup>th</sup>.
108. **Xu X.F.**, Tian H.Q, Payne, V., Eluszkiewicz, J., Bruhwiler, L., Wofsy, S.C., (2011). Methane emission from natural wetlands in northern mid-high latitude since 1980s, AmeriFlux Science Meeting & 3rd NACP All-Investigators Meeting: New Orleans, LA, pp. January 31 - February 4. (**Plenary talk**)
109. **Xu X.F.** (2011) Modeling methane and nitrous oxide exchanges between terrestrial ecosystems and the atmosphere in the context of multifactor global change. Davis Center 155, Department of Civil Engineering, Auburn University, 27<sup>th</sup> January. (**Invited**)
110. **Xu X.F.** (2010) Modeling methane and nitrous oxide exchanges between the atmosphere and terrestrial ecosystems over North America in the context of multifactor global change. School of Forestry and Wildlife Sciences, Auburn, AL, USA. November 11<sup>th</sup>.
111. **Xu X.F.**, Tian H.Q., Liu M., Zhang C. Ren.W, Chen. G. Lu C. (2010). Multiple-factor contributions to the spatial and temporal variations in terrestrial CH<sub>4</sub> flux over North America from 1979 to 2008. ESA 95<sup>th</sup> annual meeting.
112. Tian H.Q., **Xu X.F.**, Zhang C., Ren W., Chen G., Liu M., Lu C. (2009) Spatial and temporal patterns of CH<sub>4</sub> and N<sub>2</sub>O fluxes from North America as estimated by a process-based ecosystem model. Town and Country Resort & Convention Center, Feb 15<sup>th</sup>-Feb 21<sup>st</sup>, San Diego, CA. USA.
113. Liu M, Tian H.Q., Zhang C., Chen G., Villarreal B.B., **Xu X.F.**, Lu C., Ren W., Mao H., (2009) Quantifying variations of sources and delivery of organic carbon and total nitrogen from continental US to GOM by Multiple stresses by using Integrated system of the Dynamic Land Ecosystem Model and Nutrient Export (DLEM-NE). Town and Country Resort & Convention Center, Feb 15<sup>th</sup>-Feb 21<sup>st</sup>, San Diego, CA. USA.
114. Tian H.Q., Zhang C., Liu M., **Xu X.F.**, Ren W., Lu C., Chen G., Chappelka A., Sun G., Pan S., Villarreal B.B., Song X. (2009) Changes in regional carbon budget in Southeastern US during 1895-2099. Town and Country Resort & Convention Center, Feb 15<sup>th</sup>-Feb 21<sup>st</sup>, San Diego, CA. USA.
115. Tian H.Q., Zhang C., **Xu X.F.**, Liu M.L., Ren W., Chen G.S., Lu C. (2009) Exchanges of CO<sub>2</sub> and CH<sub>4</sub> between the atmosphere and terrestrial ecosystems in North America as estimated by the Dynamic Land Ecosystem Model (DLEM). Oak Ridge Laboratory, January 7-8, Tennessee, USA.
116. Tian H.Q., Melillo J., Running S., Liu J., Liu M., Kicklighter D., Mu Q., Ren W., Lu C., Chen G., **Xu X.F.**, Zhang C., Pan S., Zhao M., Myneni R.B., Song X. (2008) Changes in

- terrestrial carbon fluxes in China induced by multiple environmental changes (B51A-0369) AGU annual meeting. December 15-19. San Francisco.
117. Liu M., Tian H., Zhang C., Chen G., **Xu X.F.**, Ren W. (2008) Impacts of climate and land-use changes on water yield in Southeastern United States during the 20<sup>th</sup> century, Ocean Carbon and Biogeochemistry Scoping Workshop on Terrestrial and Coastal Carbon Fluxes in the Gulf of Mexico, St. Petersburg, Florida, May 6-8.
  118. **Xu X.F.**, Tian H., Miao S., Sindhoj E. (2008) Effects of fire on phosphorus dynamics and cattail growth in a nutrient-enriched Everglades wetland as simulated by the Wetland Ecosystem Model. ESA 93<sup>rd</sup> Annual Meeting, 3-8 August. Milwaukee, WI. USA.
  119. **Xu X.F.**, Tian H. (2007) Spatial and Temporal Patterns of Nitrogen fertilizer-induced N<sub>2</sub>O emission from China' cropland for 1980-2005. The 4<sup>th</sup> Nitrogen Conference, 1-5 October, Costa do Sauipe, Bahia, Brazil.
  120. Ren, W., Tian H.Q., Liu M., Zhang C., Chen G., **Xu X.F.** (2007) Urbanization and its Effects on Air Quality and Plant Growth: A Case Study of the Yangtze Delta of China. Urbanization and land use change conference in 2007, Atlanta, GA, US.
  121. Ren W., Tian H., Liu M. **Xu X.F.**, Melillo J., Reilly J. (2007) Modeling crop productivity and trace gas emission in agricultural ecosystems. The 4<sup>th</sup> USDA Greenhouse Gas Conference, February 5-8. Baltimore, MD. U.S.
  122. **Xu X.F.**, Song C, Song X. Linking of Microbial Community Structure to Carbon Dioxide, Methane and Nitrous Oxide Dynamics from *Calamagrostis Angustifolia* Rhizosphere Soil. International Workshop on Flux Observation Research, Asia, 1-3, December 2003, Beijing, China.
  123. **Xu X.F.**, Song C, Song X. Mechanism and Factors of the Methane Emissions from Wetlands. Management meeting of Poyang Lake drainage area, Nanchang, China, September 20, 2003.

### **Funded Projects**

- 4/2024-3/2027. U.S. NSF (Co-PI) 2346371, Collaborative Research: Linking microbial social interactions within soil aggregate communities to ecosystem C, N, and P cycling. \$982,308
- 9/2023 – 08/2026. U.S. DOE (Co-PI), BER-RENEW iSAVe: New Energy Sciences Workforce to Advance Innovations in Sustainable Arid Vegetation. \$800,000
- 8/2023 – 09/2025. U.S. DOE -- Oak Ridge National Laboratory (PI), Data Model Integration for Methane (CH<sub>4</sub>) at the S1 Bog and CH<sub>4</sub> Module Incorporation into the Energy Exascale Earth System Model. \$90,001
- 4/2023 – 3/2026. USDA (Co-PI) Translating carbon accumulation from soil aggregates into agricultural practices; \$139,237 to SDSU.
- 4/2022 – 09/2022. U.S. DOE -- Oak Ridge National Laboratory (PI), Data Model Integration for Methane (CH<sub>4</sub>) at the S1 Bog and CH<sub>4</sub> Module Incorporation into the Energy Exascale Earth System Model. \$43,800
- 9/2022 – 8/2025. NSF (PI) Collaborative Research: Understanding biophysical drivers of the CH<sub>4</sub> source sink transition in Northern Forests, \$74,889.
- 8/2022 – 7/2025. NSF (Co-PI) Towards Filling a Major Gap in the Greenhouse Gas Balance From the Arctic: Defining the Importance of N<sub>2</sub>O Emission in the North Slope of Alaska, \$299,286.

- 3/2022 – 2/2027. NSF (PI), 2145130, CAREER: Integrating a Microbial Data System with an Earth System Model for Evaluating Microbial Biogeochemistry, \$641,155
- 12/2021 – 11/2022. NSF (Co-PI) RAPID: Interactive effects of wildfire and severe drought on plants, soil microbes, and C storage in a semiarid shrubland ecosystem. \$198,970
- 11/2021 – 08/2022. SDSU (Co-PI) RAPID: Establishing a factorial drought-wildfire experiment in a recently burned native shrubland. \$24,448 (Funded but declined acceptance)
- 12/2021. CSUPERB (PI on behalf of JDPE student - Liyuan He) Travel grant to AGU annual meeting 2021. \$1,500
- 10/2020 – 9/2022. US. DOE -- Oak Ridge National Laboratory (PI), Data Model Integration for Methane (CH<sub>4</sub>) at the S1 Bog and CH<sub>4</sub> Module Incorporation into the Energy Exascale Earth System Model. \$25,000
- 10/2019 – 9/2020. US. DOE -- Oak Ridge National Laboratory (PI), Data Model Integration for Methane (CH<sub>4</sub>) at the S1 Bog and CH<sub>4</sub> Module Incorporation into the Energy Exascale Earth System Model. \$37,500
- 9/2018 – 8/2019. US. DOE -- Oak Ridge National Laboratory (PI), Data Model Integration for Methane (CH<sub>4</sub>) at the S1 Bog and CH<sub>4</sub> Module Incorporation into the Energy Exascale Earth System Model. \$37,500
- 6/2018 – 11/2019. CSUPERB (PI), An Earth System Modeling Framework for Microbial Community Structure on Litter Decomposition. \$15,000
- 12/2017 – 8/2018. SDSU faculty professional development (PI), \$1,450
- 9/2017 – 8/2021. National Science Foundation (Co-PI), Methane at zero curtain. \$350,005
- 3/2016 – 8/2018. US. DOE -- Oak Ridge National Laboratory (PI), Data-model integration for CH<sub>4</sub> cycling in Arctic tundra and a temperate peatland ecosystem. \$150,000
- 1/2016 – 12/2019. San Diego State University (PI), Towards a biologically dynamic land surface model with theories. \$224,128
- 6/2015-8/2015. University of Texas at El Paso (PI), The Campus Office of Undergraduate Research Initiatives. \$800
- 8/2014 – 12/2015. University of Texas at El Paso (PI), Data-model fusion for examining droughts and their impacts on soil carbon and nitrogen cycling in Arid ecosystems across southwest U.S. in the early 21<sup>st</sup> century. \$203,867
- 10/2014 - 9/2017. Oak Ridge National Laboratory - LDRD (Co-PI), Predicting Climate Feedbacks from Microbial Function in Tropical Ecosystems. \$659,322

### **Honors and Awards**

- 2024 – Ecosystem Health and Sustainability Best Editor Award
- 2022 – NSF CAREER award
- 2020 – SDSU Summer Flexibility Institute (\$1,000)
- 2020 – SDSU Grants and Research Enterprise Writing - CAREER
- 2018 – SDSU Early Career Faculty Fellowship (\$1500)
- 2017 – SDSU Grants and Research Enterprise Writing Fellowship (\$3000)

- 2014 – Ecological Society of America Asian Ecology Section Early Career Award
- 2012 - Scholar of DISCCRS (Dissertation Initiative for the Advancement of Climate Change Research) (\$1300)
- 2012 - Full funding to attend CESM (Community Earth System Model) Tutorial Workshop (\$1000)
- 2010 - Chinese Government Award for Outstanding Self-Financed Students Abroad for 2010 (\$5000)
- 2010 - Auburn University Outstanding International Graduate Student
- 2009 - Auburn University Outstanding Doctoral Graduate Student (Top Ten)
- 2009 - Drummond Fellowship Award from the School of Forestry and Wildlife Sciences at Auburn University (\$2500)

### **Workshop Attended**

- Workshop: CESM (Community Earth System Model) Tutorial Workshop, Boulder, 2012
- Workshop: 18th Annual CEM workshop, Breckenridge, CO, USA, 2013
- Workshop: ORNL Mini-Workshop, Oak Ridge, TN, 2014
- RCN FORECAST Workshop: Representing Soil Carbon Dynamics in Global Land Models to Improve Future IPCC Assessments. Breckenridge, CO, 2014
- Workshop: Complex Soil System Conference, David Brower Center, Berkeley, CA, 2014
- Workshop: Celebrating the 2015 International Decade of Soil – Understanding Soil's Resilience and Vulnerability, Boulder, CO, USA, 2016
- Workshop: SPRUCE project methane workshop, February 12-13, Oak Ridge, TN, 2020
- Workshop: Ecohydrology section of the Artificial Intelligence for Earth System Predictability. November 8, 2021. (zoom)
- Workshop: NSF RUoL – Workshop 1: Biodiversity – Climate. April 13, 2022 (zoom)
- Workshop: DOE AI4CH4 Workshop, March 3, 10, 17, 24, 2023 (zoom)
- Workshop: Methane uptake and dynamics workshop 2024, August 14-16, 2024, Howland Research Forest, University of Maine, Orono

### **Workshop Organized**

- Workshop: Next generation of methods and techniques to address global change problems, 99th ESA Annual meeting, 2014
- Workshop: CLM-Microbe tutorial workshop, San Diego, CA, August 15-16, 2022. (Organizer and lecturer)
- Workshop: CLM-Microbe tutorial workshop, San Diego, CA, August 14-15, 2023. (Organizer and lecturer)
- Workshop: CLM-Microbe tutorial workshop, San Diego, CA, August 13-14, 2024. (Organizer and lecturer)

### **Professional Services**

#### **Editorial Board**

Associate Editor: Global Ecology and Biogeography (2015- )

Subject Editor: Ecosystem Health and Sustainability (2016-)

Associate Editor: Journal of Plant Ecology (2025-)

Editorial Board: Agricultural and Forest Meteorology (2012- )

Special Issue Editor: Science of the Total Environment (2021-2023)

**Reviewer for Papers**

*Agricultural and Forest Meteorology, Australian Journal of Soil Research, Atmospheric Environment, Biogeosciences, Biology and Fertility of Soils, Communication Earth & Environment, Earths System Science Data, Ecology Letters, Ecological Engineering, Ecological Indicator, Ecological Informatics, Ecological Modeling, Ecosystem, Environmental Management, Environmental Monitoring and Assessment, Environmental Science and Pollution Research, Environmental Science and Technology, European Journal of Soil Biology, Geoderma, Geophysical Research Letters, Global Biogeochemical Cycles, Global Change Biology, Global Ecology and Biogeography, Journal of American Water Resources Association, iScience, Journal of Environmental Science, Journal of Geophysical Research-Atmosphere, Journal of Geophysical Research-Biogeosciences, Journal of Hydrology, Journal of Mountain Science, Mitigation and Adaptation of Strategies for Global Change, Nature Communication, Nature Ecology & Evolution, Nature Review Ecology and Environment, New Phytologist, Plant and Soil, PlosOne, PNAS, PNAS Nexus, Science Advances, Science of the Total Environment, Scientific Report, Soil Biology and Biochemistry, The ISME Journal, The Scientific World, USGS external reviewer*

**Expert Reviewer for Report**

- The 2013 National Climate Assessment Report
- The 2013 IPCC wetland supplement
- The Second Order Draft of the Working Group 1 Contribution to The IPCC's Fifth Assessment Report (AR5)

**Proposal Review Panel**

- ✓ NSF DEB (2024)
- ✓ USDA (2024)
- ✓ DOE review panelist (2023)
- ✓ NSF Office of Polar Program (2022)
- ✓ NSF DEB 2024 (2)
- ✓ NSF GRFP (2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023)
- ✓ CSUPERB program panelist (2019)
- ✓ NASA Postdoctoral Program (2017)
- ✓ DOE Advanced Scientific Computing Research (2017)
- ✓ NWO (Netherlands Organization for Scientific Research, 2015)
- ✓ Michigan State University's Global Center for Food Systems Innovation (2015)
- ✓ NSERC (The Natural Sciences and Engineering Research Council of Canada, 2013)

**University Committee**

- ✓ SDSU Fulbright Scholar Committee (2020)
- ✓ SDSU CMI Director and Associate/Full professor search committee (2023)

**Thesis Committee**

JDPE thesis committee

Xinhao Zhu (2022 -)

Hongyi Zhao (2022 -)

Yihui Wang (2016 - 2022)

Liyuan He (2017 - 2022)

JDPE qualify committee

Erin Oliver (2018)

Moises Bezerra (2019)

Bowen Zhang (2016) (Auburn University)

Mater's student thesis committee

Jingwei Zhang (2021 - 2023)

Ruth Xu (2018 - 2019)

**Conference/session Chair**

- Co-organizer for Methane uptake and dynamics workshop 2024, August 14-16, 2024, Howland Research Forest, University of Maine, Orono
- Organizer for ESA session: Soil Microbial Dynamics on the Time Horizon. 2024 ESA Annual Meeting
- Session chair for B31D. Uncovering Novel Microbial Mechanisms and Integrating Them into Ecosystem Models on 2023 AGU Annual Fall Meeting
- Organizer for ESA session: Microbial Macroecology: How Ubiquitous Soil Microbes Form a Pattern? 2023 ESA Annual Meeting
- Organizer for B11D. Integrating Latest Advances of Biogeochemical Processes into Earth System Models. 2014 AGU Annual Fall Meeting
- Organizer for OOS33. Modeling Microbial Processes: From the Earth Down or the Microbe up? 99<sup>th</sup> ESA Annual Meeting 2014
- Co-organizer for WK6 Next generation of methods and techniques to address global change problems, 99<sup>th</sup> ESA Annual Meeting 2014
- Session Presider for COS03 Biogeochemistry: Aboveground-belowground interactions. 99<sup>th</sup> ESA in 2014
- Organizer for B31G. Data-Model Integration for Improving Biogeochemistry-Climate Feedbacks in Earth System Models with Explicit Microbial Mechanisms on 2013 AGU Annual Fall Meeting
- Co-organizer for B11I. Emerging Frontiers in Biogeosciences on 2013 AGU Annual Fall Meeting
- Co-organizer for OOS2 Plant Functional Types in Dynamic Vegetation Models for Arctic Ecosystems: Past Experience, Future Direction on 98<sup>th</sup> ESA in 2013
- Co-organizer for IGN17 Scaling in Global Change Studies: Representation in Multiple Dimensions on 98<sup>th</sup> ESA in 2013
- Session Presider for COS75 Biogeochemistry: C and N cycling in response to global change on 97<sup>th</sup> ESA in 2012

**Community Services**

- ✓ Adult coach of Microbe Mission Science Olympia event of 2023-2024 at the Pacific Trail Middle School in San Diego
- ✓ Coach and committee member 2022-2023 San Diego Carmel Valley Middle School Science Olympia
- ✓ Coach and committee member 2021-2022 San Diego Carmel Valley Middle School Science Olympia
- ✓ Judge for 2017 GLOBE International Virtual Science Symposium
- ✓ Judge for 2015 UTEP COURI program undergrad symposium
- ✓ Reviewer for NPG (Next-Generation Polar Researchers) in 2015.
- ✓ Reviewer for DISCCRS (Dissertation Initiative for the Advancement of Climate Change Research) in 2014
- ✓ Science Judge for the Tennessee Science Bowl in 2013

**Teaching****Courses at SDSU**

- BIO215 Biostatistics (Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024)
- BIO315 Ecology and Human Impacts on the Environment (Fall 2017, Fall 2018, Spring 2019)
- BIO354 Ecology and Environment (Fall 2019, Spring 2020, Fall 2021, Fall 2022, Fall 2023, Spring 2024, Fall 2024, Spring 2025)
- BIO795 Seminar: Ecology and Evolutionary Biology (Spring 2017, Spring 2022)
- Guest lecture on BIO645 Theory & Principle of Ecology II (one lecture in Fall 2020, Fall 2021, Fall 2022, and Fall 2024)
- BIO745 Theory & Principle of Ecology II (Spring 2017, Spring 2018, Spring 2019, Spring 2021, Spring 2025)
- BIO535 Plant Ecology (Spring 2017, Spring 2018, Spring 2019, Spring 2021)
- BIO596 Environmental Systems Modeling: Principles and Application (Fall 2016, Fall 2020, Spring 2022)

**Courses at UTEP:**

- Frontier in Global Change Ecology (Fall 2014)
- Ecological Applications of Remote Sensing and Modeling (Spring 2015)
- Environmental Systems Modeling: Principles and Application (Fall 2015)
- Research in Environmental Sciences (Fall 2015)

**Guest Lecturer:**

1. FORY 8970 Advanced Ecosystem Modeling (Spring 2007)
2. FORY 8930 Frontier in Global Change Ecology (Spring 2008)
3. FORY 7210 Ecosystem Ecology (Spring 2009)
4. FORY 7970 Systems Ecology: Theory and Application (Fall 2010)
5. BIOL 5328 Biostatistics (Spring 2015)
6. UNIV1301 Environmental Science (Fall 2015)
7. BIOL645 Theory & Principle of Ecology I (Fall 2018, Fall 2020)

**Teaching Assistant:**

1. FORY 7970 Systems Ecology: Theory and Application, School of Forestry and Wildlife Sciences at Auburn University (Fall 2010) (with Dr. Hanqin Tian)
2. FORY 5470 001, GIS Applications in Natural Resources, School of Forestry and Wildlife Sciences at Auburn University (Fall 2009) (with Dr. Lawrence D. Teeter)

**Advisors**

Peter E. Thornton (Post-doc Advisor, Oak Ridge National Laboratory)  
Hanqin Tian (Ph.D. Advisor, Auburn University)  
Changchun Song (M.S. Advisor, Chinese Academy of Sciences)

**Mentorship****Current**

Ph.D. students:

Xinhao Zhu – San Diego State University (2022 -)  
Hongyi Zhao – San Diego State University (2022 -)

Master's students:

Jingwei Zhang – San Diego State University (2021 - present)

Undergraduate students:

Leo Sai – San Diego State University (2024 - present)

High school students:

Eric Song – Canyon Crest Academy (2024-present)  
Michelle Sun – Westview High School (2024-present)  
Anita Qian – Torrey Pine High School (2023 - present)  
Emma Yang – Torrey Pine High School (2023 - present)  
Grace Xu – Torrey Pine High School (2023 - present)  
Emily Zhang – Canyon Crest Academy (2023 - present)  
Janet Yang – Canyon Crest Academy (2023 - present)

Visiting scholars:

Ziyu Guo – Chinese Academy of Sciences (2023-2025)

**Alumni**

Postdoc:

Liyuan He – San Diego State University (2022 - 2024) (now a postdoc at Oak Ridge National Laboratory)  
Fenghui Yuan – San Diego State University (2018 - 2020) (now a professor at Chinese Academy of Sciences)  
Lihua Zhang – San Diego State University (2017 – 2018) (now a professor at Minzu University)  
Xiaochun Zhang – San Diego State University (2016-2017) (data scientist at a company)  
Chun Ma – San Diego State University (2016-2017) (data scientist at a company)  
Liping Gao – University of Texas at El Paso (2014-2015) (now a professor at the College of Global Talents)



## Students:

## Ph.D. students

Bowen Zhang – Auburn University (Graduated in 2016)  
Kavita Rajah – San Diego State University (2016 - 2019) (transferred to other labs)  
Nannan Wang – Chinese Academy of Sciences (2017 - 2019)  
Jianzhao Liu – Chinese Academy of Sciences (2020 - 2023)  
Yunjiang Zuo – Chinese Academy of Sciences (2019 - 2023)  
Liyuan He – San Diego State University (2017 - 2022)  
Yihui Wang – San Diego State University (2016 - 2022)

## Master's students

Ruth Xu – San Diego State University (committee 2019)

## Undergraduate Students:

Danielle Delaney Wozniak – San Diego State University (2022-2023) - SDSU  
Ananda Mary Attiq – San Diego State University (2022-2023) - SDSU  
Vi Phuong Dang – San Diego State University (2023) - SDSU  
Eunjin Park – San Diego State University (2022) - SDSU  
Thomas Brehme – San Diego State University (2020 - 2021) - UCLA  
Victoria Broadnax – San Diego State University (2020 - 2021) – Bahia Health  
Amy Ou – San Diego State University (2020 - 2021) - SDSU  
Diandong Tang – UT El Paso (2015) – Beijing Normal University  
Yunxuan Miao – UT El Paso (2015) – Columbia University

## Visiting scholars:

Ziyu Guo – Chinese Academy of Sciences (2023-2025)  
Dengjun Zhang – University of Oslu (2022-2023)  
Xiaodan Mei – Heilongjiang University (2020-2021)  
Fazhu Zhao – Northwest University (2019-2020)  
Lina Sun – Heilongjiang University (2019 - 2020)  
Dan Li – Heilongjiang University (2019 - 2020)  
Hui Huang – Chinese Academy of Forestry (2019 - 2020)  
Chunxia He – Chinese Academy of Forestry (2019 - 2020)  
Lingling Xu – National Meteorological Center of CMA (2019 - 2020)  
Xiwei Wang – Heilongjiang University (2018 - 2019)  
Yunhe Yin – Chinese Academy of Sciences (2018 - 2019)  
Lezhi Wu – Hubei Normal University (2018 - 2019)  
Jia Jia – Beijing Normal University (2018 - 2019)  
Zhongmei Wan – Jilin University (2017 - 2018)  
Shufeng Zheng – Heilongjiang University (2017 - 2018)  
Fenghui Yuan – Chinese Academy of Sciences (2017 - 2018)  
Jia Cao – Beijing Forestry University (2017 - 2018)  
Hongtao Duan – Chinese Academy of Sciences (2017 - 2018)  
Lihua Zhang – Chinese Academy of Sciences (2016 - 2018)  
Linna Ma – Chinese Academy of Sciences (2017)

Yuedong Guo – Chinese Academy of Sciences (2015)

High school student (Lab assistant):

Sina Djafari-Rouhani – High School Student (The poster presentation made to state-level science fair competition in Texas in 2015)

Maria Takigawa – High School Student (The poster presentation made to state-level science fair competition in Texas in 2015)

Amy Li – Westview High School (San Diego, 2017)

Sam Xiong – Canyon Crest Academy High School (San Diego, 2018)

Olivia Yang – Canyon Crest Academy high school (San Diego, 2019 – 2021) – Attend the University of Virginia with a full scholarship from **Jefferson Scholars Program**

Michael Bao – Canyon Crest Academy (2021 - 2022) – Attend UCSB, starting Fall 2023

Andrew Zhang – Canyon Crest Academy (2021 - 2022) – Attend UCLA, starting Fall 2022

Maya Smith – (2022-2023) – Henry High School, San Diego

Ethan Zhao (2023 - 2023) Parkwy Central High School, Chesterfield, MO

Emma Yang (2023-2025) – Torrey Pine High School, San Diego

Anita Qian (2023-2025) – Torrey Pine High School, San Diego

Emily Zhang (2023-2024) – Canyon Crest Academy High School, San Diego

Janet Yang (2023-2025) – Canyon Crest Academy high school, San Diego

Michelle Sun (2024- present) – Westview High School, San Diego

## **Memberships**

1. Member of Ecological Society of America (2008-present)
2. Member of American Geophysical Union (2008-present)
3. Member of the American Association for the Advancement of Science (2009-present)
4. Sino-Ecologists Association Overseas (2008-present)
5. Sigma Xi (2012, 2013)
6. United States Permafrost Association (2011-present)

## **Collaborators**

### **San Diego State University**

Nicholas Barber, Trent Biggs, Chun-Ta Lai, David Lipson, Scott Kelly, Walter Oechel, Sam Shen, Bowen Shen, Mingan Yang, Donatella Zona

### **Oak Ridge National Laboratory**

Peter E. Thornton, Wilfred M. Post, David Graham, Dwayne A. Elias, Jay Gullede, Stan Wullschleger, Tommy J. Phelp, Fengming Yuan, Paul Hanson, Colleen Iverson, Melanie A. Mayes, Daniel Ricciuto, Xiaoying Shi, Jiafu Mao

### **Chinese Academy of Sciences**

Changchun Song, Yuedong Guo, Hongtao Duan, Chi Zhang, Yao Huang, Li Zhang, Lihua Zhang, Wenting Feng, Linna Ma, Guirui Yu, Nannan Wang, Fenghui Yuan

### **Others**

Rose Abramoff (Lawrence Berkeley National Laboratory),

Elizabeth M Bach (The Nature Conservancy),

Junhong Bai (Beijing Normal University),  
Hinsby Cadillo-Quiroz (Arizona State University),  
Guangsheng Chen (Zhejiang University of Agriculture and Forestry),  
Eric Davidson (University of Maryland),  
Wenting Feng (Chinese Agricultural University)  
Andrien Finzi (Boston University),  
Shawn Fraver (University of Maine),  
Liping Gao (Southern Georgia University),  
Melannie Hartman (Colorado State University),  
Daniel Hayes (U. Maine),  
Chaoqun Lu (Iowa State U.),  
Dafeng Hui (Tennessee State U.),  
Mangling Liu (Washington State U.),  
Yiqi Luo (Cornell University),  
Dengsheng Lu (Fujian Normal University),  
Daryl Moorhead (University of Toledo),  
Shufen Pan (Boston College),  
Wei Ren (U. Connecticut),  
Jorge Rodrigues (UC Davis),  
Steve Running (University of Montana),  
Ivan Janssens (University of Antwerp),  
Kathleen Savage (Woodwell Climate Research Center),  
Joshua Schimel (U. California, Santa Barbara),  
Debjani Sihi (North Carolina State University),  
Bo Tao (U. Connecticut),  
Hanqin Tian (Boston College),  
Jennifer Watts (Woodwell Climate Research Center),  
Will Wilder (NCAR),  
Fazhu Zhao (Northwest University)  
Jianqiu Zheng (PNNL),  
Qianlai Zhuang (Purdue U.)