

Curriculum Vitae

Anping Chen, PhD

Research Scientist II, Dept of Biology
Faculty Associate, Graduate Degree Program in Ecology
Colorado State University
Fort Collins, CO 80523
Email: anping.chen@colostate.edu, apchen1111@gmail.com

Education

2009, PhD in Ecology, Princeton University. Advisor: Prof. Stephen W. Pacala
2003, MS with honors in Environmental Sciences, Peking University. Advisor: Prof. Jingyun Fang
2000, BS in Environmental Sciences, Peking University. Thesis Advisor: Prof. Jingyun Fang

Training

September 2016, Workshop on Community Land Model Tutorial. National Center for Atmospheric Research, Boulder, Colorado

Positions

2019-current, Research Scientist II, Department of Biology, Colorado State University, Fort Collins, CO 80523
2019-current, Faculty Associate, Graduate Degree Program in Ecology, Colorado State University, Fort Collins, CO 80523
2015-current, Visiting Scientist, Woods Hole Research Center, Flamouth, MA
2017-2018, Research Fellow, Department of Forestry and Natural Sources, Purdue University
2014-2015, Associate Research Scholar, Department of Ecology and Evolutionary Biology, Princeton University
2009-2014, Postdoctoral research associate, Department of Ecology and Evolutionary Biology, Princeton University

Grants

Research contract, \$124,956.74, Oak Ridge National Lab, 2018-2019, *Improving and Parameterizing the DOE Energy Exascale Earth System Model* (co-I who wrote the proposal)

Research grant, \$30,000, U.S. Forest Service, 2015-2016, *The Future of the World's Forests: carbon sequestration potential from reforestation and secondary forest regrowth* (co-PI)

Research grant, \$53,328, The Joint Fire Science Program, 2016, *Potential Climate Feedbacks of Changing Fire Regimes in the US* (lead author and co-PI)

Selected Awards and Honors

2003, Natural Science Award (1st Class), Ministry of Education of China
(http://www.moe.gov.cn/s79/B09/B09_xxgk/200312/t20031218_60828.html)

2003, Petrie Award, Princeton University Graduate School

2003, Dongsheng Award for Scientific Publications, Peking University

2002, Academic Outstanding Award for Graduate Students, the highest academic award for graduate students of Peking University

Academic Services

Editorial Advisory Board – *Global Change Biology*, 2020-

Secretary – *Asian Ecology Section, Ecological Society of America*, 2008-2010

Journal reviewer (>10 times per year)

PNAS, Ecology, Ecological Applications, Frontier in Ecology and the Environment, Global Change Biology, Global and Planetary Change, Ecosphere, Geophysical Research Letters, Journal of Geophysical Research, Journal of Plant Ecology, Biogeosciences, Science of the Total Environment, Environmental Research Letters, Journal of Advances in Modelling Earth System,...

Teaching Experience

Purdue University

Fall 2017, Instructor, *Introduction of R Programing*

Princeton University

Spring 2007, Assistant in Instruction, *EEB346 Biology of Coral Reefs* (Principle Instructor: Professor Stephen W. Pacala)

Fall 2005, Assistant in Instruction, *EEB317 Ecology of Fields and Woodlands* (Principle Instructor: Professor Henry S. Horn)

Peking University

Spring 2002, Field Assistant Instructor, *Plant Geography* (Principle Instructor: Professor Hongyan Liu)

Undergraduate Research Projects Mentored

2010 Ruth Metzler (Princeton University) – “From ‘Finca’ to Forest: Forest Cover Change and Land Management in Los Santos, Panama”

Graduate Research Project Supervised

- Songbai Hong (Peking University) – The impacts of afforestation on soil biogeochemistry (published in *Nature Communications*, *Environmental Research*; two more manuscripts are currently in prep.)
- Zhengzhong Zeng (Peking University) – Climate determinants of tropical tree coverage and tropical forest and savanna distribution (published in *Scientific Reports*, *JGR-Biogeosciences*)
- Jiangguang Tan (Peking University) – Seasonally different response of photosynthetic activity to daytime and night-time warming in the Northern Hemisphere (published in *Global Change Biology*)
- Shaopeng Wang (Peking University-Princeton University) – Neutral theory of biodiversity, phylogenetics, and evolutionary dynamics (published in *PNAS*, *American Naturalists*, and *Journal of Theoretical Biology*)

Publications

Google Scholar citations 8190, H-index 35 (retrieved March 31, 2020)

<http://scholar.google.com/citations?user=4ZoN5wgAAAAJ&hl=en>

* co-first author

corresponding author

Five representative publications

- Chen, A.P., Mao, J.F., Ricciuto, D.M., Xiao, J.F., Frankenberg, C., Li, X., Gu, L.H., Knapp, A.K. 2020. Moisture availability mediates the relationship between terrestrial gross primary production and solar-induced fluorescence: Insights from global scale variations. *Global Change Biology*. (in revision) [**Carbon cycle, remote sensing**]
- Hong, S. *, Yin, G. *, Piao, S. #, Dybzinski, R., Cong, N., Li, X., Wang, K., Peñuelas, J., Zeng, H., Chen, A. # 2020. Divergent responses of soil organic carbon to afforestation. *Nature Sustainability* (accepted) [**Soil science, forest ecology**]
- Chen AP*, Wang SP*, Fang JY, Pacala SW. 2013. Why abundant tropical tree species are phylogenetically old. *PNAS* 110: 16039-16043. [**Evolutionary and theoretical ecology**]
- Chen A. P., Wang S. P., Pacala, S. W. 2012. Comment on "Global correlations in tropical tree species richness and abundance reject neutrality". *Science* 336: 1639. [**Biogeography, theoretical ecology**]
- Fang J. Y., Chen A. P., Peng C. H., Zhao S. Q., Ci L. J. 2001. Changes in forest biomass carbon storage in China between 1949 and 1998. *Science*, 292: 2320-2322. [**Carbon cycle, forest ecology**]

Five other significant publications

- Chen, A., Tang, R., Mao, J., Yue, C., Li, X., Gao, M., ... & Ciais, P. (2020). Spatiotemporal dynamics of ecosystem fires and biomass burning-induced carbon emissions in China over the past two decades. *Geography and Sustainability*, <https://doi.org/10.1016/j.geosus.2020.03.002>. [Fire ecology, models]
- Hong S., Piao S.[#], Chen A.[#], Liu Y., Liu L., Peng S., Sardans J., Sun Y., Peñuelas J., Zeng H. 2018. Afforestation neutralizes soil pH. *Nature Communications*, 9: 520. [Forest ecology, soil science]
- Chen, A.P., Peng, S.H., Fei, S. L. 2019. Mapping global forest biomass and its changes over the first decade of the 21st Century. *Science China Earth Sciences* 62(3), 585-594. <https://doi.org/10.1007/s11430-018-9277-6> [Carbon cycle, machine learning]
- Wang XH, Piao SL, Ciais P, Friedlingstein P, Myneni RB, Cox P, Heimann M, Miller J, Peng SS, Wang T, Yang H, Chen AP. 2014. A two-fold increase of carbon cycle sensitivity to tropical temperature variations. *Nature* 506: 212-215. [Carbon cycle, climate change]
- Chen AP, Lichstein JW, Osnas JLD, Pacala SW. 2014. Species-independent down-regulation of leaf photosynthesis and respiration in response to shading: evidence from six temperate forest tree species. *PLoS ONE* 9 (4), e917983. [Ecophysiology, forest ecology]

Full publication list

2020

80. Chen, A.P., Mao, J.F., Ricciuto, D.M., Xiao, J.F., Frankenberg, C., Li, X., Gu, L.H., Knapp, A.K. 2020. Moisture availability mediates the relationship between terrestrial gross primary production and solar-induced fluorescence: Insights from global scale variations. *Global Change Biology* (in revision)
79. Hong, S.^{*}, Yin, G.^{*}, Piao, S.[#], Dybzinski, R., Cong, N., Li, X., Wang, K., Peñuelas, J., Zeng, H., Chen, A.[#] 2020. Divergent responses of soil organic carbon to afforestation. *Nature Sustainability* (accepted)
78. Chen, A. (2020). The 400-year natural history of a tropical coastal mangrove-fringed lagoon: What can we learn? *Global Change Biology* (in press)
77. Liu, X., et al. (including Chen, A.). 2020. High-spatiotemporal-resolution mapping of global urban change from 1985 to 2015. *Nature Sustainability* (accepted)
76. Li, X., et al. (including Chen, A.). 2020. Trade-off between gymnosperm resistance and resilience increases forest sensitivity to extreme drought. *Nature Ecology & Evolution* (accepted)
75. Chen, A., Tang, R., Mao, J., Yue, C., Li, X., Gao, M., ... & Ciais, P. 2020. Spatiotemporal dynamics of ecosystem fires and biomass burning-induced carbon emissions in China over the past two decades. *Geography and Sustainability*, <https://doi.org/10.1016/j.geosus.2020.03.002>.

74. Lian, X., Piao, S., Li, L. Z., Li, Y., Huntingford, C., Ciais, P., ... & Chen, A. et al. 2020. Summer soil drying exacerbated by earlier spring greening of northern vegetation. *Science Advances*, 6(1), eaax0255. DOI: 10.1126/sciadv.aax0255
73. Kattge, J., *et al.* (including Chen, A.). 2020. TRY plant trait database–enhanced coverage and open access. *Global Change Biology*, 26: 119-188. <https://doi.org/10.1111/gcb.14904>
72. Piao, S., Wang, X., Park, T., Chen, C., Lian, X., He, Y., Bjerke, J.W., Chen, A., Ciais, P., Tømmervik, H. and Nemani, R.R. 2020. Characteristics, drivers and feedbacks of global greening. *Nature Reviews Earth & Environment* 1, 14-27. <https://doi.org/10.1038/s43017-019-0001-x>

2019

71. Zhou, Y., Jing, L., Jiao, S., Chen, A., Li, N., Lei, J., ... & Lei, G. 2019. Dynamics of greenhouse gas emission induced by different burrowing activities of fossorial vertebrates in the Qinghai–Tibetan Plateau alpine meadow ecosystem. *International Journal of Biometeorology* 64, 115-122.
70. Zeng, Z., Ziegler, A. D., Searchinger, T., Yang, L., Chen, A., Ju, K., ... & Liu, J. 2019. A reversal in global terrestrial stilling and its implications for wind energy production. *Nature Climate Change*, 9(12), 979-985. <https://doi.org/10.1038/s41558-019-0622-6>
69. Li, Y., Piao, S., Chen, A., Ciais, P., & Li, L. Z. 2019. Local and tele-connected temperature effects of afforestation and vegetation greening in China. *National Science Review* nwz132. <https://doi.org/10.1093/nsr/nwz132>.
68. Chen, A.P., Peng, S.H., Fei, S. L. 2019. Mapping global forest biomass and its changes over the first decade of the 21st Century. *Science China Earth Sciences* 62(3), 585-594. <https://doi.org/10.1007/s11430-018-9277-6>
67. Gao, M., Piao, S., Chen, A., Yang, H., Liu, Q., Fu, Y.H. and Janssens, I.A., 2019. Divergent changes in the elevational gradient of vegetation activities over the last 30 years. *Nature Communications*, 10(1): 2970. <https://doi.org/10.1038/s41467-019-11035-w>
66. Piao, S., Liu, Q., Chen, A., Janssens, I.A., Fu, Y., Dai, J., Liu, L., Lian, X., Shen, M. and Zhu, X., 2019. Plant phenology and global climate change: Current progresses and challenges. *Global Change Biology*, 25(6): 1922-1940. <https://doi.org/10.1111/gcb.14619>
65. Hong, S., Gan, P. and Chen, A.[#]. 2019. Environmental controls on soil pH in planted forest and its response to nitrogen deposition. *Environmental Research*, 172: 159-165. <https://doi.org/10.1016/j.envres.2019.02.020>
64. Peng, L., Zeng, Z., Wei, Z., Chen, A., Wood, E.F. and Sheffield, J., 2019. Determinants of the ratio of actual to potential evapotranspiration. *Global Change Biology*, 25 (4): 1326-1343. <https://doi.org/10.1111/gcb.14577>
63. Yang, H., Piao, S., Huntingford, C., Peng, S., Ciais, P., Chen, A., Zhou, G., Wang, X., Gao, M. and Zscheischler, J., 2019. Strong but intermittent spatial covariations in

tropical land temperature. *Geophysical Research Letters*, 46: 356-364.

<https://doi.org/10.1029/2018GL080463>

62. Li, X., Li, Y., Chen, A., Gao, M., Slette, I.J. and Piao, S., 2019. The impact of the 2009/2010 drought on vegetation growth and terrestrial carbon balance in Southwest China. *Agricultural and Forest Meteorology*, 269: 239-248.
<https://doi.org/10.1016/j.agrformet.2019.01.036>
61. Piao, S., Zhang, X., Chen, A., Liu, Q., Lian, X., Wang, X., ... & Wu, X. 2019. The impacts of climate extremes on the terrestrial carbon cycle: A review. *Science China Earth Sciences*, 1-13. <https://doi.org/10.1007/s11430-018-9363-5>
60. Zhou, Y., Jing, L., Jia, Y., Lei, G., Yao, Y., Lv, C., Chen, A.[#], & Lei, G.C.[#], 2019. Population dynamics of four endangered cranes and landscape patterns of habitats in the East Dongting Lake during recent 30 years. *Journal of Lake Sciences*, 31(5), 1415-1423.

2018

59. Hong S., Piao S.[#], Chen A.[#], Liu Y., Liu L., Peng S., Sardans J., Sun Y., Peñuelas J., Zeng H. 2018. Afforestation neutralizes soil pH. *Nature Communications*, 9: 520.
58. Li, Y., Piao, S., Li, L.Z., Chen, A., Wang, X., Ciais, P., Huang, L., Lian, X., Peng, S., Zeng, Z. and Wang, K., 2018. Divergent hydrological response to large-scale afforestation and vegetation greening in China. *Science Advances*, 4(5), p.eaar4182.
57. Fei, S., Jo, I., Guo, Q., Wardle, D.A., Fang, J., Chen, A., Oswalt, C.M. and Brockerhoff, E.G., 2018. Impacts of climate on the biodiversity-productivity relationship in natural forests. *Nature Communications*, 9(1), p.5436.
56. Zeng, Z., Estes, L., Ziegler, A.D., Chen, A., Searchinger, T., Hua, F., Guan, K., Jintrawet, A. and Wood, E.F., 2018. Highland cropland expansion and forest loss in Southeast Asia in the twenty-first century. *Nature Geoscience*, 11(8), p.556.
55. He, Y., Piao, S., Li, X., Chen, A. and Qin, D., 2018. Global patterns of vegetation carbon use efficiency and their climate drivers deduced from MODIS satellite data and process-based models. *Agricultural and Forest Meteorology*, 256, pp.150-158.
54. Yun, H., Wu, Q.[#], Zhuang, Q.[#], Chen, A.[#], Yu, T., Lyu, Z., Yang, Y., Jin, H., Liu, G., Qu, Y. and Liu, L., 2018. Consumption of atmospheric methane by the Qinghai–Tibet Plateau alpine steppe ecosystem. *The Cryosphere*, 12(9), pp.2803-2819.
53. Yao, Y., Li, Z., Wang, T., Chen, A., Wang, X., Du, M., Jia, G., Li, Y., Li, H., Luo, W. and Ma, Y., 2018. A new estimation of China's net ecosystem productivity based on eddy covariance measurements and a model tree ensemble approach. *Agricultural and Forest Meteorology*, 253, pp.84-93.
52. Yan, T., Qu, T., Sun, Z., Dybzinski, R., Chen, A., Yao, X., Zeng, H. and Piao, S., 2018. Negative effect of nitrogen addition on soil respiration dependent on stand age: Evidence from a 7-year field study of larch plantations in northern China. *Agricultural and Forest Meteorology*, 262: 24-33.
51. Yang, H., Zhou, F., Piao, S., Huang, M., Chen, A., Ciais, P., Li, Y., Lian, X., Peng, S. and Zeng, Z., 2017. Regional patterns of future runoff changes from Earth system

models constrained by observation. *Geophysical Research Letters*, 44(11), 5540-5549.

2017

50. Chen AP et al. 2017. Climate Feedbacks from Biomass Burning in the United States. *U.S. Joint Fire Science Program Reports*. https://www.firescience.gov/projects/16-S-01-2/project/16-S-01-2_final_report.pdf
49. Tang YJ, Chen AP, and Zhao SQ. 2016. Carbon Storage and Sequestration of Urban Street Trees in Beijing, China. *Front. Ecol. Evol.* 4: 53. doi: 10.3389/fevo.2016.00053

2016

48. Zeng Z, Zhu Z, Lian X, Li LZ, Chen A, He X, Piao S. 2016. Responses of land evapotranspiration to Earth's greening in CMIP5 Earth System Models. *Environmental Research Letters*, 11(10), 104006.

2015

47. Wang SP[#], Chen AP[#], Pacala SW, Fang JY. 2015. Abundance dependent speciation rate changes the behaviors of neutral communities. *Journal of Theoretical Biology* 372: 128-134.
46. Zeng ZZ, Chen AP, Ciais P, Li Y, Li LZ, Vautard R, Zhou LM, Piao SL. 2015. Regional air pollution brightening reverses the greenhouse gases induced warming-elevation relationship. *Geophysical Research Letters* 42: 4563–4572.
45. Han J, Shen ZH, Ying LX, Chen AP. 2015. Early post-fire regeneration of a fire-prone subtropical Pinus mixed forest in Yunnan, southwest China: the effects of pre-fire vegetation, fire severity and topographic factors. *Forest Ecology and Management* 356: 31-40.
44. Piao SL, Tan JG, Chen AP, Ciais P, Janssens IA, Vicca S, Zeng ZZ, Fu YS, Jeong SJ, Li Y, Myneni RB, Peng SS, Shen MG, Peñuelas J. 2015. Leaf onset in the northern hemisphere is more associated with daytime than with nighttime temperature. *Nature Communications* 6: 6911 doi: 10.1038/ncomms7911
43. Tan JG, Piao SL, Chen AP, Zeng ZZ, Ciais P, Janssens IA, Mao JF, Myneni RB, Peng SS, Peñuelas J, Shi XY, Vicca S. 2015. Seasonally different response of photosynthetic activity to daytime and night-time warming in the Northern Hemisphere. *Global Change Biology* 21: 377-387.
42. Sun ZZ, Chen AP, Ma JH, He CE, Ouyang Z, Tian ZR. 2015. Fertilization regulates the response of grain yields to temperature variation in a winter wheat-maize double cropping system. *Journal of Plant Ecology*: rtu40

2014

41. Chen AP, Lichstein JW, Osnas JLD, Pacala SW. 2014. Species-independent down-regulation of leaf photosynthesis and respiration in response to shading: evidence from six temperate forest tree species. *PLoS ONE* 9 (4), e917983.

40. Zeng Z, Chen A[#], Piao S[#], Rabin S, Shen Z. (2014). Environmental determinants of tropical forest and savanna distribution: a quantitative model evaluation and its implication. *Journal of Geophysical Research-Biogeosciences* 119: 1432-1445.
39. Wang XH, Piao SL, Ciais P, Friedlingstein P, Myneni RB, Cox P, Heimann M, Miller J, Peng SS, Wang T, Yang H, Chen AP. 2014. A two-fold increase of carbon cycle sensitivity to tropical temperature variations. *Nature* 506: 212-215.
38. Piao SL, Nan HJ, Huntingford C, Ciais P, Friedlingstein P, Sitch S, Peng SS, Ahlström A, Canadell JG, Levis S, Levy PE, Liu LL, Lomas MR, Mao JF, Myneni RB, Peylin P, Poulter B, Shi XY, Yin GD, Viovy N, Wang T, Wang XH, Zaehle S, Zeng N, Zeng ZZ, Chen AP. 2014. Evidence for a weakening relationship between temperature variability and northern vegetation activity. *Nature Communications* 5: doi:10.1038/ncomms6018.

2013

37. Zeng ZZ, Piao SL[#], Chen AP[#], Lin X, Nan HJ, Li JS, Ciais P. 2013. Committed changes in tropical tree cover under the projected 21st century climate change. *Scientific Reports* doi: 10.1038/srep01951.
36. Peng SS, Piao SL, Ciais P, Myneni RB, Chen AP, Chevallier F, Dolman AJ, Janssens IA, Penuelas J, Zhang GX, Vicca S, Wan SQ, Wang SP, Zeng H. 2013. Asymmetric effects of daytime and night-time warming on Northern Hemisphere vegetation. *Nature* 501: 88-92.
35. Chen AP^{*}, Wang SP^{*}, Fang JY, Pacala SW. 2013. Why abundant tropical tree species are phylogenetically old. *PNAS* 110: 16039-16043.
34. Wang SP, Chen AP, Fang JY, Pacala SW. 2013. Speciation rates decline through time in individual-based models of speciation and extinction. *The American Naturalist* 182: E83–E93.
33. Shen MG, Sun ZZ, Wang SP, Zhang GX, Kong WD, Chen AP, Piao SL. 2013. No evidence of continuously advanced green-up dates in the Tibetan Plateau over the last decade. *PNAS* 110: E2329-E2329.
32. Li J, Lin X, Chen A, Peterson T, Ma K, et al. 2013. Global Priority Conservation Areas in the Face of 21st Century Climate Change. *PLOS ONE* 8: e54839
31. Peng SS, Piao, SL, Shen ZH, Ciais P, Sun ZZ, Chen SP, Bacour C, Peylin P, Chen AP. 2013. Precipitation amount, seasonality and frequency regulate carbon cycling of a semi-arid grassland ecosystem in Inner Mongolia, China: A modeling analysis. *Agricultural and Forest Meteorology* 178: 46-55.
30. Cong N, Piao SL, Chen AP, Wang XH, Lin X, Chen SP, Han SJ, Zhou GS, Zhang XP. 2012. Spring vegetation green-up date in China inferred from SPOT NDVI data: A multiple model analysis. *Agricultural and Forest Meteorology* 165: 104-113.

2012

29. Chen A. P., Wang S. P., Pacala, S. W. 2012. Comment on "Global correlations in tropical tree species richness and abundance reject neutrality". *Science* 336: 1639.

28. Xu XT, Piao SL, Wang XH, Chen AP, Ciais P, Myneni RB. 2012. Spatio-temporal patterns of the area experiencing negative vegetation growth anomalies in China over the last three decades. *Environmental Research Letters* 7: 035701.

2011

27. Chen A. P., Piao S. L., Luysaert S., Ciais P., Janssens I. A., Friedlingstein P., Luo Y. Q. 2011. Forest annual carbon cost: Reply. *Ecology* 92: 1998-2002.
26. Peng S. S., Chen A. P., Xu L., Cao C. X., Myneni R. B., Pinzon J. E., Tucker C. J., Piao S. L., Fang J. Y. 2011. Recent change of vegetation growth trend in China. *Environmental Research Letters* 6: 10.1088/1748-9326/6/4/044027
25. Wang X. H., Piao S. L., Ciais P., Li J. S., Friedlingstein P., Koven C., and Chen A. P. 2011. Spring temperature change and its implication in the change of vegetation growth in North America from 1982 to 2006. *PNAS* 108: 1240-1245.
24. Piao SL, Cui M, Chen AP, et al. 2011. Altitude and temperature dependence of change in the spring vegetation green-up date from 1982 to 2006 in the Qinghai-Xizang Plateau. *Agricultural and Forest Meteorology* 151: 1599-1608.
23. Sun J. Y., Wang X. H., Chen A. P., Ma Y. C., Piao S. L. 2011. NDVI indicated characteristics of vegetation cover change in China's metropolises over the last three decades. *Environmental Monitoring and Assessment* 179: 1-14.

2010

22. Piao S. L., Luysaert S., Ciais P., Janssens I. A., Chen A. P., Cao C., Fang, J. Y., Friedlingstein P., Luo Y., Wang S. P. 2010. Forest annual carbon cost: a global-scale analysis of autotrophic respiration. *Ecology* 91: 652-661.
21. Lichstein J W., Dushoff J., Ogle K., Chen A.P., Purves, D. W., Caspersen J. P., Pacala S. W. 2010. Unlocking the forest inventory data: relating individual tree performance to unmeasured environmental factors. *Ecological Applications* 20: 684-699.

2009 and before

20. Yang Y. H., Fang J. Y., Smith P., Tang Y. H., Chen A. P., Ji C. J., Hu H. F., Rao S., Tan K., He J.-S. 2009. Changes in topsoil carbon stock in the Tibetan grasslands between the 1980s and 2004. *Global Change Biology* 15: 2723-2729.
19. Piao S. L., Ciais P., Friedlingstein P., Peylin P., Reichstein M., Luysaert S., Margolis H., Fang J. Y., Barr A., Chen A. P., Grelle A., Hollinger D. Y., Laurila T., Lindroth A., Richardson A. D., Vesala T. 2008. Net carbon dioxide losses of northern ecosystems in response to autumn warming. *Nature* 451: 49-53.
18. Wirth C., Lichstein J. W., Dushoff J., Chen A.P., Chapin F. S., III. 2008. White spruce meets black spruce: dispersal, postfire establishment, and growth in a warming climate. *Ecological Monographs* 78: 489-505.
17. Fang J. Y., Guo Z. D., Piao S.L., Chen A. P. 2007. Terrestrial vegetation carbon sinks in China, 1981-2000. *Science in China -Earth Sciences* 50: 1341-1350.

16. Piao, S., P. Friedlingstein, P. Ciais, L. Zhou, and A. Chen. 2006. Effect of climate and CO₂ changes on the greening of the Northern Hemisphere over the past two decades, *Geophysical Research Letters* 33, L23402, doi:10.1029/2006GL028205.
15. Chen A. P., Chen C. D. 2004. Ecological and political costs of river diversion. *Nature* 429: 501.
14. B Zhu, A Chen, Z Liu, J Fang. 2004. Plant community composition and tree species diversity on eastern and western Nanling Mountains, China. *Biodiversity Science* 12: 53-62. (in Chinese with English abstract)
13. Z Wang, A Chen, S Piao, J Fang. 2004. Pattern of species richness along an altitudinal gradient on Gaoligong mountains, southwest China. *Biodiversity Science* 12: 82-88. (in Chinese with English abstract)
12. B Zhu, A Chen, Z Liu, G Li, J Fang. 2004. Changes in floristic composition, community structure, and tree species diversity of plant communities along altitudinal gradients on Mt. Mao'er, Guangxi, China. *Biodiversity Science* 12: 44-52. (in Chinese with English abstract)
11. Z Wang, A Chen, J Fang. 2004. Richness of Seed Plants in Relation with Topography in Hunan Province. *Acta Geographica Sinica* 59, 889-894. (in Chinese with English abstract)
10. Y Yang, S Rao, H Hu, A Chen, C Ji, B Zhu, W Zuo et al. 2004. Plant species richness of alpine grasslands in relation to environmental factors and biomass on the Tibetan plateau. *Biodiversity Science* 12: 200-205. (in Chinese with English abstract)
9. Piao S. L., Fang J. Y., **Chen A. P.** 2003. Seasonal dynamics of terrestrial net primary production in response to climate changes in China. *Acta Botanica Sinica* 45: 269 - 275.
8. Fang J. Y., Chen A. P., Zhao S. Q., Ci L. J. 2002. Calculating forest biomass change in China, response. *Science*, 296: 1359b.
7. Fang JY, AP Chen, SQ Zhao, LJ Ci. 2002. Estimating biomass carbon of China's forests: supplementary notes on report published in Science (291: 2320-2322) by Fang et al.(2001). *Acta Phytoecologica Sinica* 26: 243-249. (in Chinese with English abstract)
6. S Zhao, J Fang, A Chen, G Lei. 2002. Dynamics of waterfowl habitats in the Eastern Dongting Lake Nature Reserve between 1989 and 1998. *Journal of Natural Resources* 18: 726-733. (in Chinese with English abstract)
5. Chen Y, Chen AP, Fang JY. 2002. Geographical distribution patterns of endangered fishes, amphibians, reptiles and mammals and their hotspots in China: a study based on "China Red Data Book of Endangered Animals". *Biodiversity Science*, 10: 359-368. (in Chinese with English abstract)
4. S Zhao, J Fang, A Chen, H Cui. 2002. Land use/cover changes in Dongting Lake area between 1955-1998. *Resources and Environment in the Yangtze Basin* 11: 536-542. (in Chinese with English abstract)
3. Fang J. Y., Chen A. P. 2001. Dynamic forest biomass carbon pools in China and their significance. *Acta Botanica Sinica*, 43: 967-973.

2. J Fang, J Ke, Z Tang, Chen A. 2001. Implications and estimations of four terrestrial productivity parameters. *Acta Phytoecologica Sinica* 25: 414-419. (in Chinese with English abstract)
1. Fang J. Y., Chen A. P., Peng C. H., Zhao S. Q., Ci L. J. 2001. Changes in forest biomass carbon storage in China between 1949 and 1998. *Science*, 292: 2320-2322.