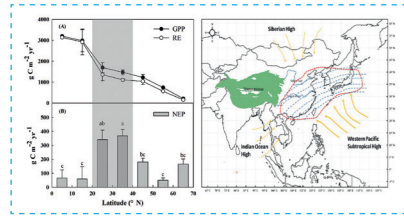
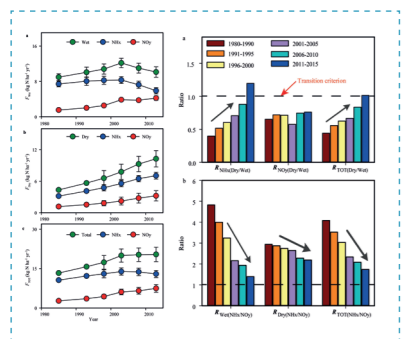


Research Group of Carbon-nitrogen-water Coupled Cycling of Terrestrial Ecosystem
Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences



东亚亚热带森林高碳汇功能区的发现
Detecting the high carbon sink functional area in East Asia subtropical forest



中国大气氮沉降转型变化新趋势
New trend of atmospheric nitrogen deposition and transformation in China



出版专著
Monographs published

Major contributors

- He Nianpeng
- Wen Xuefa
- Wang Qiufeng
- Zhang Xinyu
- Chen Zhi

Targeting at the research frontiers of ecosystem ecology and serving national carbon neutral strategy, the group established a theoretical framework for the coupled carbon nitrogen water cycles in terrestrial ecosystems, developed carbon-nitrogen-water coupled observation platforms and technology systems, and revealed the response mechanism underlying the environmental effects on the coupled cycling under global change. It expanded the new frontier of plant functional traits and the related mechanisms underlying the carbon nitrogen water coupling, systematically assessed the carbon sinks and potentials of China's terrestrial ecosystem, and served the national "double carbon" strategy. The group made important breakthroughs on the development of ecosystem observational platform and technology, and the theoretical scheme on coupled carbon, nitrogen, and water cycles, which improved the research capability on ecosystem network monitoring and advanced the development of ecosystem ecology.

Outstanding contributors of this research group

Yu Guirui

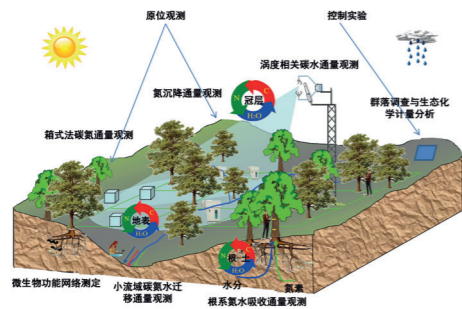
He established the theoretical framework of carbon-nitrogen-water coupled cycling and its environmental impact, developed observation technology systems and platforms, built a national scale integrative system on field observation-data transmission-statistical analysis-model simulation, quantitatively defined the carbon sink hotspots of China's terrestrial ecosystem, and evaluated the current status and potential of terrestrial ecosystem carbon budget in China.

He Honglin

He developed a process-based model for evaluating ecosystem services, constructed a carbon cycle model-data fusion framework, and assessed the trend and variation of carbon sink in China in the past 30 years.

Niu Shuli

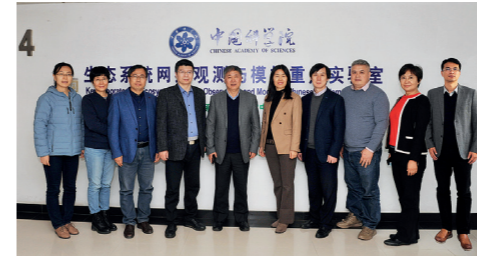
She evaluated the impacts of global change on ecosystem carbon-nitrogen-water coupled cycling, revealed a series of biological regulation mechanisms, and clarified the large scale nitrogen cycle patterns and the microbial regulatory mechanisms.



生态系统碳氮水通量观测核心技术体系
Core technology system of ecosystem carbon, nitrogen and water fluxes observation



全球变化控制实验
The global change manipulative experiments



研究集体成员合影
Research group photo

陆地生态系统碳-氮-水耦合循环研究集体

推荐单位：中国科学院地理科学与资源研究所

研究集体主要科技贡献：

该研究集体将国际生态学研究前沿与国家碳中和战略需求紧密结合，率先建立了陆地生态系统碳-氮-水耦合循环研究的理论体系，创新发展了碳-氮-水耦合循环观测技术体系与平台，定量揭示了全球变化背景下碳-氮-水耦合循环的响应机制及环境效应，拓展了植物功能性状调控碳-氮-水耦合循环的新思路，评估了中国陆地生态系统碳汇功能区和增汇潜力，服务于国家“双碳”战略。研究集体在碳-氮-水通量观测技术和耦合理论发展方面取得了重要突破，提升了我国联网监测的研究实力，推动了生态系统生态学学科发展。

研究集体突出贡献者



Yu Guirui

于贵瑞 中国科学院地理科学与资源研究所

主要科技贡献：建立了碳-氮-水耦合循环及环境影响的理论体系，发展了碳-氮-水耦合循环观测技术体系与平台，构建了国家层次的野外观测-数据传输-统计分析-模型模拟系统，定量刻画了我国陆地生态系统碳汇区，评估了我国陆地生态系统碳收支现状与潜力。



He Honglin

何洪林 中国科学院地理科学与资源研究所

主要科技贡献：发展了生态系统服务评估模型，构建了碳循环模型-数据融合系统，多模型评估了我国近30年碳汇变化趋势与变异。



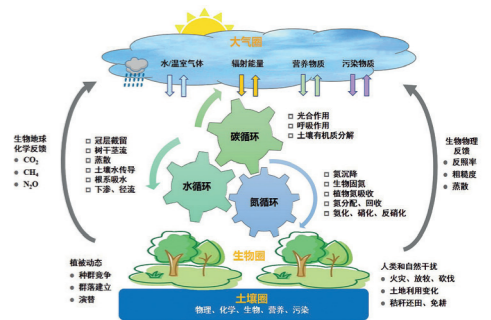
Niu Shuli

牛书丽 中国科学院地理科学与资源研究所

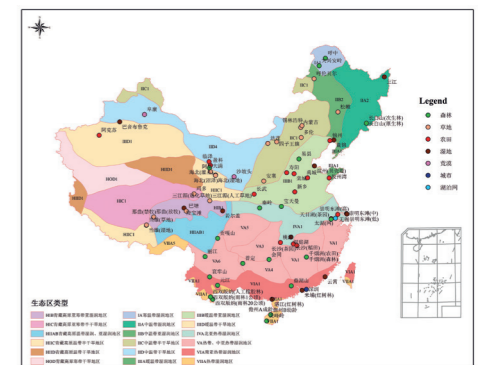
主要科技贡献：评估了全球变化对碳-氮-水耦合循环的影响，揭示了生态系统响应气候变化的系列调控机制，阐明了氮循环过程的宏观模式及微生物机制。

研究集体主要完成者

何念鹏 温学发 王秋凤 张心昱 陈智



碳-氮-水耦合循环过程
Processes of carbon-nitrogen-water coupled cycling



中国通量观测研究网络
Chinese Flux Observation and Research Network (ChinaFLUX)