Wenping Yuan

Title: Research Associate, National Research Council (NRC) Research Associateship Programs, working at U.S. Geological Survey Earth Resource Observation and Science Center

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Education

Research Associate, 2008.3 – present, National research council associateship programs, working at U.S. Geological Survey Earth Resource Observation and Science Center
Postdoctoral fellow, 2007.3 – 2008.3, University of Oklahoma
Ph.D, 2001.9 – 2007.1, Institute of Botany, the Chinese Academy of Sciences
B.S, 1997.9 – 2001.7, University of Inner Mongolia;

Areas of Specialization and Research

Dr. Yuan has extensive and in-depth work experiences on eddy covariance flux data synthesis analysis and terrestrial ecosystem models. Integrated the multiply eddy flux towers, Dr. Yuan characterized response functions of net ecosystem exchange (NEE), gross primary production (GPP) and ecosystem respiration (Re) against temperature at ecosystem scales. With a filter of solar radiation levels, he, for the first time, showed that critical thresholds of temperature response functions are adapted to mean annual air temperature, suggesting long-term, high-level evolutionary adaptation at the ecosystem levels. He also found the increasing temperature sensitivity of Re with decreasing annual mean temperature and the higher temperature sensitivity of GPP at humidity regions across the spatial scales. His findings can greatly improve our understanding of ecosystem responses to global change. Furthermore, Dr. Yuan developed an innovative light use efficiency model (i.e., the EC-LUE model) for simulating daily gross primary production (GPP) dynamics, and refined a global evapotranspiration (ET) model (RS-PM model). These models have been successfully validated using GPP and ET estimates from eddy covariance towers worldwide. They will become critical parts of the land data assimilation and forecasting system that will be used to implement in the near future for mapping daily GPP and ET over large areas. More importantly, he proposed a new parameterization scheme of dynamic global vegetation models (DGVMs) by integrating EC-LUE model into DGVMs, which has a great potential to improve quantifying the geographic distributions, magnitudes, and mechanisms of the terrestrial carbon sinks and sources across the regional and global scales.