



ILLINOIS
UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN

Postdoctoral Research Associate at UIUC: Modeling nitrogen and hydrological dynamics using the Ecosys model for U.S. agroecosystems.

One Postdoctoral Researcher Position in the [Department of Natural Resources and Environmental Sciences \(NRES\)](#) and [National Center for Supercomputing Applications \(NCSA\)](#) at the University of Illinois at Urbana-Champaign (UIUC), full-time, 100% (2-year duration, with possibility of extension, contingent upon performance and funding).

Summary: The successful candidate will use the advanced *Ecosys* model (<http://ecosys.ualberta.ca/>) to characterize and predict *nitrogen and hydrological dynamics for the agroecosystems of the US Corn Belt* under current and future climate. The simulation will be hyper-resolution (a few meters to 1km) and for broader spatial scales (the whole US Midwest). The work directly contributes to developing viable adaptations (e.g. agronomy practices, cover crop, viable-rate fertilizing) to improve the resilience and sustainability of US Midwest agriculture, which currently produces ~45% and ~30% of the world's corn and soybeans, respectively.

Specific responsibilities include: implementing and calibrating the *Ecosys* model to integrate multi-source observations (field trials, watershed data, surveys, and satellite) to simulate crop yield, nitrogen dynamics and hydrological fluxes for US agroecosystems; developing/building new modules for *Ecosys*; conducting regional simulations for current and future climate conditions; preparing peer-reviewed publications and education materials; managing projects and reporting; and communicating research at professional meetings.

The successful applicant will be working with a team of scientists in earth system modeling and ecosystem dynamics, including **Dr. Kaiyu Guan** in UIUC (<http://faculty.nres.illinois.edu/~kaiyuguan/>), **Dr. Jinyun Tang** in Lawrence Berkeley National Lab (<https://eesa.lbl.gov/profiles/jinyun-tang/>), **Dr. Robert Grant** in University of Alberta and also the developer of the *Ecosys* model (<https://www.ualberta.ca/agriculture-life-environment-sciences/about-us/facultylecturer-directory/robert-f-grant>), and **Dr. Symon Mezbahuddin** in Alberta Agriculture and Forestry (<http://www.agric.gov.ab.ca/app88/loaddetail?id=126586&action=6&search>). The work includes travels to the Berkeley National Lab or University of Alberta for extended training. The applicant will be routinely working on Blue Waters supercomputing system (<https://bluewaters.ncsa.illinois.edu/blue-waters>), the most powerful supercomputer in U.S. universities.

Qualifications: Applicants should have a Ph.D. in earth and atmospheric science, meteorology, hydrology, environmental engineering, physics, mathematics, or a closely related field. Prior research experiences in Earth system modeling (e.g. CLM) and data assimilation are highly preferred. Strong programming skills (e.g., Python and Fortran in the Linux environment) and prior experience in supercomputing or big data analytical systems is **required**, as the applicant will be working routinely in the Blue Waters supercomputer environment. Candidates will be considered if graduation with a Ph.D. is expected by the targeted starting date. Proficiency in spoken/written English is mandatory. The appointment is two years (renewed annually) and may be extended, contingent upon the performance. Salary is competitive and commensurate with experience in relevant research.

Starting Date: Ideal starting time is **March 1, 2018**, but negotiable. The position is open till filled.

Application Process: To ensure full consideration, qualified candidates must send a cover letter, CV, and contact information of three references via e-mail to Dr. Kaiyu Guan (kaiyug@illinois.edu) and Dr. Jinyun Tang (jinyuntang@lbl.gov). All requested information must be submitted in order for your application to be considered. Incomplete applications will not be considered. Applicants will be immediately reviewed upon receiving the application while the search may continue until the position is filled. For further information, please contact: Dr. Kaiyu Guan (kaiyug@illinois.edu) and Dr. Jinyun Tang (jinyuntang@lbl.gov) for more information.

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