Society Science

New CO₂ Flux Measurement Network for the Lower Mississippi Basin

Networked research sites are increasingly used to study regional land management impacts on carbon and water fluxes. However, key national networks lack contributions from the Lower Mississippi River Basin (LMRB), a highly productive agricultural area with opportunities for soil carbon sequestration through conservation practices.

To address this need, a new regional flux network structure—called Delta-Flux—was created to coordinate efforts to quantify carbon and water budgets at 17 eddy covariance flux tower sites in the LMRB. In an article recently published in Agricultural and Environmental Letters, the creators of Delta-Flux report on how it will facilitate climate-smart land management strategies that are based on production-scale and continuous measurements of carbon and water fluxes from the landscape to the atmosphere under different soil and water management conditions. The states covered—Louisiana, Mississippi, and Arkansas—are among the most productive in the U.S., with high rates of evapotranspiration and high potential for carbon sequestration through conversion of photosynthetically derived carbon dioxide into soil organic matter.

The new network will create data from 17 instrumented field sites including the most characteristic landscapes of the target area: row crop fields, pasture, grasslands, forests, and marshes. The network participants are committed to open collaboration and efficient regionalization of site-level findings to support sustainable agricultural and forestry management and conservation of natural resources.

In future years, the network of observations will set a foundation to regionalize and internationalize the findings to develop optimal agricultural production strategies across a variety of landscape types. These strategies aim to balance both soil carbon sequestration and harvest productivity goals.
