

Alternatives for Quantifying Wetland Carbon Emissions in the Community Land Model (CLM) for the Binbong Wetland, Korea.

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Abstract

Wetlands are a critical component of the global carbon cycle and are essential in mitigating climate change. Accurately quantifying wetland carbon emissions is crucial for understanding and predicting the impact of wetlands on the global carbon budget. The uncertainty quantifying carbon in wetlands may come from the ecosystem's hydrological, biochemical, and microbiological variability. The Community Land Model is a sophisticated and flexible land surface model that offers several configuration options such as energy and water fluxes, vegetation dynamics, and biogeochemical cycling, necessitating careful consideration for the alternative configurations before model implementation to develop a practical model framework. We conducted a systematic literature review, analyzing the alternatives, focusing on the carbon stock pools configurations and the parameters with significant sensitivity for carbon quantification in wetlands. In addition, we evaluated the feasibility and availability of in situ observation data necessary for validating the different alternatives. This analysis identified the most suitable option for our study site, the Binbong Wetland, in Korea.

Keywords : Carbon, Wetland, CLM, climate modeling

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