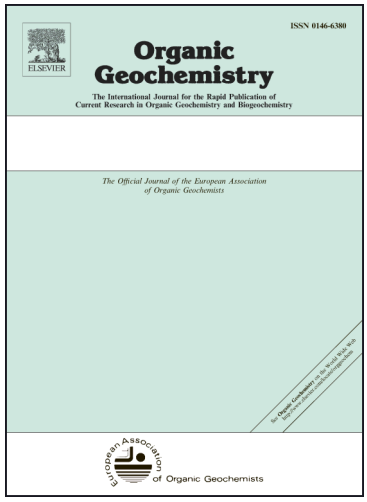

Extracting the most from terrestrial plant-derived *n*-alkyl lipids and their carbon isotopes from the sedimentary record: A review

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Extracting the most from terrestrial plant-derived *n*-alkyl lipids and their carbon isotopes from the sedimentary record: A review

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ABSTRACT

Terrestrial plant biomarkers and their carbon isotopes provide insights into carbon cycling, paleovegetation and paleoclimate, ranging in scale from local to global. Over the past decade, considerable efforts have been made to constrain the factors that influence plant biomarkers and their carbon isotope composition to improve their utility for paleo applications. Global and regional replication of time intervals of great interest, such as during carbon cycle perturbations, has increased the need to compare among sites, but doing so has also complicated interpretation of carbon cycle perturbations due to the differences among records. This has led to questions regarding the fidelity of isotope records, the sensitivity of the isotope record to climate, and the best practices for reconciling records. But, at the same time, it has led to new exciting information on ecosystem responses to climate change. By removing competing influences of climate, ecosystem and biology, modern biomarker and isotope calibrations provide a means of reconciling and improving paleorecords and placing quantitative constraints on their interpretation. Here, we review the factors that influence the concentration of plant biomarkers and their