



Reconciling South American Monsoon and paleo-environmental reconstructions from the last deglaciation

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Stable isotope records from western and southeastern tropical South America document wet conditions during the last glacial, in contrast to a dry early-middle Holocene. However, biological proxies such as pollen and algal records from sites in the southern Amazon Basin, point to vegetation that reflects dry conditions during the last glacial period. Here we use a multi-proxy approach, utilizing $\delta^{18}\text{O}$, $\delta^{13}\text{C}$ and $87\text{Sr}/86\text{Sr}$ in stalagmites together with XRF-derived elemental chemistry, $\delta^{13}\text{C}_{\text{org}}$ total organic and inorganic carbon in a sedimentary profile from the same cave where the stalagmites were collected to clarify the climate and environmental shifts that occurred between the LGM and Holocene in central South America. We show that vegetation was sparse during the last glacial period despite a strong monsoon, and that changes in atmospheric CO_2 and temperature were the possible drivers for vegetation development during this time.