
PP23D-1525: Microfossil and Stratigraphic Evidence for Late Quaternary Paleoenvironmental Changes at Lagoa Negra, Central Pantanal Wetlands (Brazil)

Tuesday, 11 December 2018

13:40 - 18:00

📍 *Walter E Washington Convention Center - Hall A-C (Poster Hall)*

Analyses of sediment cores recovered from the Negra Lake (NL) provide a new perspective on the environmental history of the central Pantanal wetlands for the last 19,000 yrs. Stratigraphy and multiple proxies (sponge spicules and phytoliths) suggest six depositional units. Lithostratigraphic units of deglacial age suggested varied paleoenvironments at the core site, including a fluvial channel system (~19.0-18.0 cal ka), an evaporative shallow lake (~18.0-15.0 cal ka), and a floodplain that experienced frequent inundation from the Paraguay River (~15.0-13.0 cal ka). Bulliform phytolith morphologies, indicative of water-stressed grasses, help to confirm the presence of relatively dry paleoenvironments. The transition into the Holocene was marked by a relatively wet Younger Dryas and the establishment of perennial lake by ~11.0 cal ka. Key indicators of the stable lacustrine paleoenvironment include the abundance of the sponges *Corvoheteromeyenia heterosclera* and *Heteromeyenia barlettai*, the near pristine state of spicule preservation, and high concentrations of sedimentary organic carbon, which suggests elevated primary productivity. A hiatus is apparent in the core stratigraphy, marked by sandy oxidized muds and an abrupt transition in microfossils, that omits the middle to late Holocene transition (~5.7-3.0 cal ka). This is attributed to an arid interval that affected the Pantanal that has been identified in other lake and cave proxies from the region. Sponge spicules and phytoliths suggest wetter conditions after ~3.0 cal ka, with a transition to near-modern conditions by ~1.0 cal ka. The paleolimnological analysis of NL suggests that the basin responds in a complex and at times indirect manner to climate change, modulated by floodplain geometry and geomorphology, fluvial depositional processes, and local vegetation patterns.

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