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HOLOCENE HYDROCLIMATE RECONSTRUCTION FROM THE NORTHEAST PERUVIAN ANDES BASED ON HIGH RESOLUTION ISOTOPE ANALYSIS OF SPELEOTHEMS FROM CASCAYUNGA CAVE

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A high resolution oxygen isotope ($\delta^{18}O$) record from speleothems collected in northeastern Perú are used to investigate variations in hydroclimate conditions associated with the changes in the intensity of the South American Monsoon System (SAMS) during the Holocene. This speleothem record shows significant $\delta^{18}O$ isotope variations that follow insolation over the southern hemisphere (10°S) over the early and mid Holocene in agreement with other paleoclimate proxies over the Andes. Our results confirm variations in SAMS intensity over the Holocene for continental proxies, showing a constant lapse rate between high and low altitude proxies until ~ 4000 A.D.. Over the late Holocene, discordance of trends in SAMS activity are attributed to responses of ocean-atmosphere variability related to orbital and radiative forcing. Abrupt variations in $\delta^{18}O$ records that have timing that are synchronous with northern hemisphere cold spells known as Bond Events suggest that increased precipitation has occurred during these periods. Moreover, the intensity and duration of the wet events is enhanced during mid and late Holocene, probably related to different boundary conditions of ice cover in the northern hemisphere and diminished fresh water in the Atlantic Ocean that reduced AMOC intensity, triggering more humid conditions in northern South America. Additionally, comparisons with other paleo records in South America highlight some spatial differences in precipitation that should be considered in order to define adequately SAMS behavior over different timescales.