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Reconstruction of the last three millennia South American Monsoon variability over the Amazon basin using speleothem isotope records

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South American Monsoon System (SAMS) and its main feature, the South American Convergence Zone (SACZ) are responsible for the major distribution of moisture in South America. The current work presents a novel high-resolution oxygen isotope record ($\delta^{18}O$) based on speleothems from southwest Amazon basin (Brazil), right at SAMS' core region and SACZ onset, where there is still a gap of high resolution paleoclimate records. The novel $\delta^{18}O$ record presents an average of 3 year-resolution, composed by 1344 stable isotope analysis performed in two speleothems with a well-resolved chronology (37 U/Th ages) with average errors <1%. This work aims to describe the rainfall variability of the core region of the South American monsoon for the last 3k years and to take a broader look at precipitation patterns over Amazon basin. The Rondônia δ18O record shows three main stages throughout this time period. The first is from -1000 to ~400 CE, where it's in accordance with most of other paleorecords from the Amazon basin. the second segment is from ~400 to 1200 CE, when there is a continuous increase in the δ18O record until it reaches its highest values around 850 CE during the MCA (800-1200 CE), which is in accordance with western Amazon records, whilst the record in eastern Amazon presents an opposite trend. Thus, a precipitation dipole over Amazon emerges from ~400 CE onwards, majorly triggered by anomalous climate changes such as MCA, where western (eastern) Amazon is drier (wetter). During LIA (1450-1800 CE), on the other hand, Rondônia record presents its lowest values, also agreeing with western records and with records under the influence of SACZ whilst on eastern Amazon a drier period is established. Therefore, with this novel paleoclimate record located at the core region of SAMS, it's possible to evidence the dynamics of the precipitation dipole over the Amazon region, as well as understand the SACZ intensity variations.