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MULTI-DECADAL VARIABILITY OF THE SUMMER MONSOON SYSTEM DURING THE HOLOCENE IN THE CENTER-WESTERN REGION OF BRAZIL BASED ON SPELEOTHEM RECORDS

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The South Atlantic Convergence Zone (SACZ) is considered to be the most important Monsoon System feature in South America (SAMS). The central-west region of Brazil is a key region for the reconstruction of the SAMS variability because it is located around axis of the SACZ main activity area. The present results of the stable isotope geochemistry research allow for reconstructing the paleo-precipitation interannual to subdecadal variability of the 2000 years based on more than 2400 $\delta^{18}O$ isotopic analyses of 3 stalagmites. The chronology of these samples is constrained by 17 $^{230}Th/^{234}U$ dates. The results of the paleorainfall reconstruction within SACZ region along the last 2000 years is presented here in the context of the monsoon rainfall variability over the South American continent, its relationship with Atlantic and Pacific SST (sea surface temperature) variations (ex : Atlantic Mutidecenal Oscillation - AMO and Pacific Decadal Oscilation - PDO) and possible climate forcing. The "amount effect" has been identified as the main factor controlling the carbonate $\delta^{18}O$ variability. The study of 2000 $\delta^{18}O$ composite record is used to determine that MCA (Medieval Climatic Anomaly) and LIA (Little Ice Age) episodes appear to be drier periods in comparison of present day climate. This result is similar to what was found by Novello et al. (2012) study in Nordeste region. The expression of the MCA as drier is similar to the whole South America pattern in response to the AMO positive anomaly. Nevertheless, the expression of the LIA as dry is more local and seems to be restricted to central - eastern part of Brazil and can be due to a regional effect of the AMO negative excursion in link with the intensification of the Bolivian High-Nordeste Low pressure system due to increased SAMS rainfall and related convective heating over the SW portion of the Amazon region.