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Strong correlation between western Pacific tropical climate and Atlantic meridional overturning circulation over the periods of 33–23 kyr BP

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The Atlantic meridional overturning circulation (AMOC) distributes heat/energy between north and south hemisphere, and thus influences global mean and abrupt climate events. Looking back into late Pleistocene of ~60,000 to 20,000 years ago, the Earth was characterized by dramatical fluctuations both in temperature and precipitation, so it is the best period to study the correlation between the AMOC and global climate. In addition, the AMOC intensity profoundly also affects the sea surface temperature in the low latitude, and then the sea-air interactions. Here we have reconstructed a new decadal $\delta^{18}O$ record over the period of 26.4–24.3 kyr BP using a speleothem collected from Vietnam to understand the hydroclimate changes in the western Pacific. Combining with previously published records, droughts in Vietnam, likely resulted from reduced Asian monsoon, well correlated to weak AMOC from 33 to 23 kyr. Therefore, our study confirms the fast and sensitive responses of tropical area to the climate events in Atlantic high latitudes.