

Interactive comment on “Three distinct Holocene intervals revealed in NW Madagascar: evidence from two stalagmites from two caves, and implications for ITCZ dynamics” by Ny Riavo G. Voarintsoa et al.

Anonymous Referee #2

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This paper presents climate reconstruction obtained from two speleothems located in northwestern Madagascar. Three climatic episodes are identified based on change in $\delta 18O$ and $\delta 13C$. The mid Holocene interval is represented by a hiatus that lasted from 7.8 to 1.6 ka. Petrology, mineralogy and stable isotopes are inferred to discuss changes in stalagmite physiognomy and geochemical composition and relate to climatic changes. The discussion on how to detect hiatuses in speleothems is very interesting with issues of broad interest. However several concerns that are listed below are preventing from allowing a publication of these results in their actual presentation. 1) a discussion on age results and age model is lacking. 2) results show several dis-

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crepancies between the two speleothems at a same age which are not commented. A presentation of the curves separately is needed with a discussion on the results. 3) the results are never discussed at a regional scale and some important references are lacking from paleoclimate reconstructions in eastern Africa and Indian Ocean. The Holocene wet-dry-wet succession was already identified in several studies never cited here. The climate boundaries of the Holocene might be spatially limited but not non-existent. 4) the ITCZ is presented as the main and only driving force to explain the regional hydrological changes ignoring the Indian Ocean Dipole.

Setting Describe the climatic anomalies that are observed today.

Discussion 8.2 ka : all right I can see a decrease in $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$. However before and after 8.2 k we observe that $\delta^{18}\text{O}$ the similar patterns as the $\delta^{18}\text{O}$ of Greenland $\delta^{18}\text{O}$ is absent. Is similarity only detected at 8.2k ?

The discussion on ITCZ is too long and includes too many generalities and no novelties. New scientific questions should arise at the end of the paper.

Figures We need a map with the location of the other paleoclimate reconstructions around the Indian Ocean and Eastern Africa

Figure 5 I can see many differences between the two sites at a same age.

Figure 6 I do not understand this figure.

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