

Interactive comment on “Effects of changes in moisture source and the upstream rainout on stable isotopes in precipitation — a case study in Nanjing, East China” by Y. Tang et al.

Tang et al. examined the isotopic variations in precipitation both monsoon and non-monsoon period in Nanjing, East China and aimed to explain control factor for those variations which is important for interpreting the stable isotopic composition of speleothems in the Asian monsoon region. In general, it is improved compare to the previous versions; but the two parts(monsoon and non-monsoon) was not combined as a whole to organize the whole paper, I think the paper of the manuscript still needs further improvements before publication because of following reasons.

- Major comments

First, the author should clearly differentiate the seasonal variations and inter-seasonal variations in the manuscript. From the Fig 4/5a, it is clear that the temperature effect is obvious in non-monsoon period, but in summer monsoon period, it seems that “amount effect” characterized by negative relationship between precipitation  $\delta^{18}\text{O}$  and precipitation amount were also exist from three year observations, in spite of the isotopic amount effect cannot account for this variability in summer time . Therefore, the author should illustrate that properly in the whole manuscript.

Second, the author give explanations in detail for inter-seasonal variations during summer season, and point out that changes in moisture source location and upstream rainout effect is controlling factors for those variations. However, in this part, it is not quite pertinence to interpreting the stable isotopic composition of speleothems in the Asian monsoon region. Therefore, this part should be highly summarized. In addition, please add the isotopic background characteristics of each possible source area (e.g. Bay of Bengal, South China Sea and inland area) in the Section of study area, which will benefit to understanding the variations in summer time. Or as suggested by previous reviewer, the purpose of this paper just mainly focuses on explaining the precipitations variations during summer time but not interpreting variations in speleothems.

- Minor corrections

- 1) Line 15-16: Rainfall amount effect exists during the summer period, but rainfall amount effect cannot explain the inter-summer variations. Therefore, there sentence should be illustrating properly.
- 2) Line 100-102: Those explanations should be appeared in section of Method and materials.
- 3) Line 110-181: Please make the description of study area short and concise.
- 4) Line 110-181: How E was calculated, that should be mentioned here.