Interactive comment on "A temperature threshold to identify the driving climate forces of the respiratory process in terrestrial ecosystems" *by* Zhiyuan Zhang et al.

Anonymous Referee #3

This manuscript bg-2017-345 entitled "A temperature threshold to identify the driving climate forces of the respiratory process in terrestrial ecosystems" by Zhang et al. derived an annual mean air temperature (MAT) threshold for identifying the driving climate forces of the respiratory (Re) process in terrestrial ecosystems using a global flux dataset. Quantile regression was used in their study. They found an ecosystem threshold of MAT was 11âĎČ. When MAT was below 11âĎČ, Re was mostly a temperature dependent. When MAT was above 11âĎČ, Re was a multifactor-driven process. In general, this topic is interesting focuses on an important research field fits into aims and scope of this journal. The authors used a global dataset try to find some macro regulation rules underline the nature at ecosystem level. This kind of research

need to be encouraged with the sharply increase in observation dataset synthesis. Hence the authors should be given a chance to revise their manuscript that it can be accepted for publication. I mainly concerned that besides temperature, there are lots of other variables affect Re directly, such as soil moisture, precipitation, soil C/N, vegetation type, biomass and even litter. How to separate these variables' effects? I recommend the authors try to classify their huge dataset with these aspects, for example, soil moisture, to make more sound conclusions.

Please also note the supplement to this comment:
https://www.biogeosciences-discuss.net/bg-2017-345/bg-2017-345-RC3-supplement.pdf

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