

## ***Interactive comment on “Lightning Data Analysis of the CMA Network in China” by Feng Li et al.***

### **Anonymous Referee #2**

Received and published: 24 June 2017

The paper has been improved with this revision, especially in terms of clarity and explanations. The use of references has been optimized, the figures are clearer. The responses to the comments are very relevant and satisfactory. There are only a few points remaining.

From a technical perspective, the detection of lightning mainly depends on the baseline of stations and the threshold to define a lightning event. The analysis of spatial lightning distribution only makes sense when the resolution of detection efficiencies is homogeneous, i.e. the baseline of sensors and threshold are similar. There is no description of how lightning events are detected and extracted and there is no detailed description of the algorithm for the four presented methods. In addition, the distribution of sensors is not homogeneous and some regions are much denser than other areas, and there is also no station in Tibet. I think these missing elements should be included in the discussion.

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The LF and VLF radio signal of CG lightning can propagate over a thousand kilometers or more. The baseline of this network is only 170 km. In my opinion, it should be possible to use more than 4 sensors to determine lightning locations. This reviewer finds it confusing that the authors still use M1, M2 and M4 as they also confirm that using more stations results in better locations in this paper. Further, there is a large section discussing the use of these four methods (Section 2.2), but it is unclear what the scientific meaning of the method ‘usage frequency’ is. I propose the authors clarify why these methods are used and what the scientific reason of comparing them is.

Some results in this paper, such as, that thunderstorms normally occur in the summer and that positive lightning is easier to trigger in winter thunderstorms, were presented before [e.g. Rakov, V. A., and M. A. Uman, 2003, Chapter 2 & 5). The results in this paper provide a description of the literature but don’t present novel results. Overall, I would highly recommend that the authors include further analysis to produce more substantial evidence. For example, the correlation between lightning occurrences and some meteorological and climate information, the spatial distribution of positive lightning, because positive lightning normally occurs close to tall objects or close to objects of moderate height located on mountain tops.

The newly added content about lightning current is brilliant. I would like to suggest to add some description about the lightning current calculation algorithm rather than just providing a result.

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Interactive comment on Atmos. Meas. Tech. Discuss., doi:10.5194/amt-2016-380, 2017.

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