

Interactive comment on “Composition of ammonia-oxidizing archaea and their contribution to nitrification in a high-temperature hot spring” by S. Chen et al.

Anonymous Referee #1

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This manuscript aimed at addressing contribution to nitrification in a high-temperature hot spring. The high abundances of ammonia oxidizing archaea (AOA) were determined by qPCR. The number of the studies on nitrification process and corresponding source microorganisms is still rare. Therefore, this paper is timely and the idea behind is interesting. However, it is just a single site in Tengchong hot spring system and could not represent the whole region. The results just simply show the data and lack logical writing. Some paper close related are not cited or fully discussed in this manuscript (Hou et al. 2013; Xie et al. 2014). The authors could investigate more sites to get a statistic results for the nitrification process in the region, compare with other geothermal systems and get some overall rationales for the similarities or differences among

C7664

them. Therefore, I suggest acceptance with significant revisions. Below are line-by-line comments: Page 16258, line 6-14, Hou et al. (2013, Plos one) and Xie et al. (2014, EM) have shown the dominated of AOA in the Gongxiaoshe hot spring. It should be mentioned here. Page 16260, line 20. What is the brand for the GC-IRMS? Page 16262, line 10-20. How many sequences have you got? What is the representation of those sequences? Hou et al. (2013, Plos one) have already published thousands of 16S rRNA sequences from this site, why do not you cite some to build the phylogenetic tree? Page 16262, line 25. All the “*amoA*” should be italics. Page 16263, line 11-20. How specific these qPCR reactions are? What are the efficiencies and R² values of the qPCR assays? Page 16267, line 1-4. What is the meaning of the phylotype close to soil AOA? Does it mean that the soil might be one source of the hot spring AOA? Should do some discussion here. Page 16267 line 16. Xie et al.(2014, EM) has shown similar results by lipid marker. Should be mentioned here. Page 16268 line 5-25. This paragraph just generally described the AOA research in geothermal hot springs. No discussion about your own data. Should be specific about how the environmental factors controlling the AOA in Gongxiaoshe hot spring.

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C7665