

## Response to Referee #1

*The study develops high-resolution NH<sub>3</sub> emission inventories in China during 1980–2012 based on the bottom-up estimates. The authors provide annual trend of NH<sub>3</sub> using region-specific and temporal-varied emission factors. As a result, the authors found the significant annual trend which increased from 1980 to 1996 and then fluctuated from 1997 to 2006, but went down a sharp decrease after 2006. They clarified that this downward trend is mainly caused by a change in the relative contributions of urea and ABC consumption and by an improvement of rearing system for livestock manure. These are new findings. Additionally, the interannual variations of spatial distribution of NH<sub>3</sub> emissions are discussed. This article is the first study in which the interannual and spatial variations of NH<sub>3</sub> emissions in China are estimated based on the top-down methodology using detailed regional information. Consequently, the reviewer recommends publishing this paper and expects that the gridded emission data is opened as early as possible.*

**Response:** Thank the referee for comments on our manuscript and we appreciate the referee's hard work and kindly concern.