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Interactive comment on “Trend and characteristics of atmospheric emissions of Hg, As, and Se from coal combustion in China, 1980–2007” by H. Z. Tian et al.

Anonymous Referee #2

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By now, China has been the largest coal producer and consumer in the world. Coal burning is not only a main source for the conventional air pollutants such as PM, SO₂, and NO_x, but also an important anthropogenic source for many kinds of toxic trace elements, such as Hg, As, Se, Pb, Cd, Sb, Cr, etc. Among them, Hg, As, and Se belongs to volatile trace heavy metals and will be vaporized and emitted into the atmosphere when coal burning. By 2009, the total coal consumption in China has exceeded over 3 billions, and most coal was burnt directly by the utility boilers and industrial boilers, resulting large amounts of hazardous trace elements emissions and potential poisoning damages for environment and human health. Therefore, It is of great significance to develop an emission inventory of Hg, As, and Se from coal in China. By conducting

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integrated research on the detailed coal production and consumption by region and by economic sectors, and accounting for the emission factors specified by different types of coal combustion facilities and different PM and SO₂ control devices, Tian and coauthors have developed an integrated emission inventory of Hg, As and Se from coal during the period of 1980-2007, with the detailed information on regional allocation and spacial emission intensity, sectoral contribution, as well as the temporal change trend. It is important because it thoroughly investigates the temporal trend and distribution characteristics of atmospheric emission of 3 typical trace elements (Hg, As, and Se) from coal in China during the past 3 decades. Also, it reveals the arrest of the increase in emission from coal-fired power plants that has occurred owing to the wide application of WFGD since 2005, which thanks to the strictly implementation of “the 11th five year plan”. This result is correct. It will have important implications for local air quality, as well as long distance transportation of trace elements. The referee thinks the methodology, data sources, and the developed emission inventory is reasonable and reliable, and it presents a good view for the current situation of Hg, As, Se emissions in China. In addition, the referee notices that the authors have modified and improved the original paper with good response for the comments proposed by the editor and the referees. Therefore, The referee believes that this paper is a timely and important paper, and should be published by the journal of Atmospheric Chemistry and Physics (ACP).

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