Review comments: "Multi-pollutants emissions from the burning of major agricultural residues in China and the related health-economic effect assessment" by Li C. et al..

This paper describes results from experimental investigations on EFs of multi-pollutants from crop residues open burning in China, and try to estimate the health-economic effect under different scenarios. Considering the limited EFs for crop residues open burning, new emission data for various types of biomass are always welcome addition to the literature, and should be useful to air quality communities. *This paper is reasonably well written. But there are a number of revisions that should be addressed prior to publication.*

When comparing EFs in this study with literature data, I notice that only comparable data from literature is included (for example, Line 505 to 507 when comparing OC and EC EFs, Line 605 to 608 when comparing EFs of PAHs, etc). However, it is already known and acknowledged that the EFs of crop residues burning could have a wide range due to different combustion condition, properties of biomass etc…(McMeeking et al., 2009; Reid et al., 2005). Both similarity and differences in EFs should be discussed. Moreover, due to crop residues used in this study were dehydrated at 100 degrees for 24h (thus had much lower moisture content compared with elsewhere), it tends to have a much lower EFs of incomplete combustion product, such as PM and OC from chamber studies (Chen et al., 2010; Hayashi et al., 2014). However, for biomass open burning combustion intensity may be higher than those from chamber studies, and thus this would result in a lower EF. When applying EFs from this study to estimate emission inventories, I would like to suggest that the uncertainties from the effect of moisture content and the burning style should be discussed in this paper.

China maps used in Figure 7 are incomplete, part of Xinjiang and Tibet is missing from maps in Figure 7, there should be a reason to explain this.

Line 228, the definition of MCE (Modified Combustion Efficiency) should be given. $MCE=\Delta CO_2/(\Delta CO_2+\Delta CO)$, where ΔCO_2 and ΔCO are the excess molar mixing ratios of CO_2 and CO, and thus cannot be monitored directly, as stated on Line 228.

When stating there are "significant differences" between means, the statistical tests should be conducted and the results should be also given. Otherwise, there are no significant evidence that one mean differs from the other. The statistical test should be conducted in Line 495, 519, 617, 766…

Although several ways to estimate uncertainties of the emissions were mentioned in Section 3.3.4 (Line 827 to Line), it is not clear which method is used in this study. For the emission inventory in this study, a discussion of the overall inventory uncertainty is needed and this could be given by considering the uncertainties in each of the terms in the inventory (Eq 5).

There are also some errors and corrections needed where more care should also be taken, including but not limited to:

Line 215, "costume-built" should be "custom-built";
Citation formatting and styling errors should be corrected carefully. For example, Line 360, References should be cited with publication year. Chen et al. (2001) is cited under Cao's publication…
Line 374, Qin et al. (2012) is cited, but is missing from References list.