

# ***Interactive comment on “Impacts of historical climate and land cover changes on fine particulate matter (PM<sub>2.5</sub>) air quality in East Asia over 1980–2010” by Yu Fu et al.***

## **Anonymous Referee #2**

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This paper is virtually a follow up of previous works carried out by the same authors. The paper reports the effect of climate change, changes in land-use and land cover on PM<sub>2.5</sub> and its precursors in east China. While this topic has been investigated quite extensively in the last several year, simultaneous influences of climate change and LULC on PM<sub>2.5</sub> and corresponding chemical speciation were seldom tackled and provided useful information. The paper could be publishable in ACP. Before the paper goes to ACPD, some key fundamental issues should be addressed because these issues are crucial to the interpretation to their results.

Specific comments: 1. Authors selected 1981-1985 and 2007-2011 as their scenarios modeling periods. They should tell readers what was the rationale in the selection of

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these two periods, and typical reasons? 2. To do so, authors need to present the differences of key meteorological / climate variables between the two periods, such as temperature, precipitation, and winds, e.g.,  $T_{2010} - T_{1980}$  where T is gridded temperature over East Asia. They can present these differences like what they did in Fig. S1 of Supplementary. These would help readers to figure out where temperatures, wind speeds, and precipitation across East Asia increased or decreased for these two periods of time, and make sense to their discussions. 3. It might be better to present 5 model scenarios on a table with corresponding descriptions (line 170-180).

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