

Interactive comment on “Large contributions of biogenic and anthropogenic sources to fine organic aerosols in Tianjin, North China” by Yanbing Fan et al.

Anonymous Referee #3

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Fine aerosol particle (PM_{2.5}) pollution has been one of the most severe environmental problems in the North China Plain (NCP) since the beginning of the new century. In order to elucidate the sources and formation processes of fine particles, here the authors have conducted a field campaign in urban Tianjin, a coastal megacity in NCP, to collect PM_{2.5} samples on a day/night basis during the winter of 2016 and the summer of 2017. The diurnal patterns are discussed according to the potential effects of land/sea breezes. Tracer-based methods are used to estimate the rough contributions of both primary and secondary sources to aerosol OC. In general, this is an interesting study focusing on the detailed molecular compositions of fine organic aerosols in the coastal regions of China. The results are informative to better understand the diurnal

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and seasonal trends of organic aerosols under the influence of local emissions and regional transport. I suggest the manuscript to be accepted for publication in ACP after some revisions based on the comments listed below.

Comments 1. Page 5, lines 2-3: four or five rain events? In addition, please clarify the amount of precipitation in Figure 2; 0.06 mm should be 6 mm? 2. In Page 5, the authors state that during the sampling periods, one rain event occurred in the winter and other four in the summer. Do you have any idea about the source strengths of both primary and secondary OC to total OC between the rainy days and fine days? I'd like to see a bit more discussions on this point in the section of 3.3. 3. In the Caption of Figure 6, It would be better to provide the sampling periods (or seasons) for Categories A – D, which make readers easy to follow. 4. Page 11, Line 19, change “which were five times...” to “being five times...”. 5. Page 12, line 13, “The significant high concentrations...” should be “The significantly high concentrations...”. 6. Page 12, line 18, delete “particularly”. 7. Page 13, Section 3.4.2, toluene SOC was found to be the predominant source to OC. What's the main sources of toluene in local regions?

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