

I have the following two remarks on the content:

Line	Remark
292	POC and secondary organic carbon (SOC) were estimated using the EC tracer method (Lim and Turpin, 2002; Turpin and Huntzicker, 1995). : This statement might deserve a comment that comparison with AMS results has shown that this method generally overestimated the POC, and thus underestimates SOC. Also, one could mention “ POC was calculated to be 2xEC (this is what I read from Fig. 2).
294	Figures 2a and 2b show that there are strong correlations between HULIS and POC, and HULIS and EC: This deserves a statement that it is not surprising that HULIS correlates with POC if it does so with EC, as POC is calculated from EC.

In addition, the manuscript requires technical corrections. Please improve the wording in the following instances (incomplete list):

Line	Text
20	Average concentration of ambient HULIS was 7.5 $\mu\text{g}/\text{m}^3$ in atmospheric PM _{2.5}
24	shows residential biofuel and coal burning, secondary formation are important annual sources
137	to perform on-road emission test
140	draw a constant ratio of sample flow from exhaust
152	is provided in Text S1 of Supplement
180	PPM _{2.5,i} is the calculated source contributions
195	Table S4 of Supplement
198	General of ambient aerosol characteristics
209	it is higher measurements in the urban areas
216	were similar with those
219	summarized in Table S1 of Supplement.
220	had a significant positive correlation with the annual $r^2=0.90$
223	lower than the ~10% in the PRD region
224	Strong correlations of HULISC with OC were observed with the annual $r^2=0.87$ (and further instances of the same type: at least add a comma, otherwise it is confusing)
236	listed in Table S1 of Supplement (and further instances)
251	Combustion condition have much influence
253	For advanced stove used in
254	thus HULIS produce less; and further instances
254	While for stove used in Chinese rural household
256	and thus also have effect on the results
257	Dryness content of fuels was found to be
269	(MEP of China, 2014),
272	Due to lack of $f_{\text{HULIS},i}$
279	While industry sector and power plants contribute about 3% and close to zero, respectively.
283	Cooking contribute about twenty percent
286	thus cooking are not considered
299	biomass burning, industry, and vehicles contributes the rest.
301	K ₊ generally originate from biomass burning with lesser contributions from coal burning and dust
319	about 200 Km
321	While weaker correlations were observed in summer and autumn with $r^2=0.40$ and $r^2=0.43$, respectively.
326	($R^2=0.89$): otherwise always used r^2 .
328	Significant correlation between were also found
341	were much higher than predicted primary HULISc concentrations
353	This difference is likely with the result of greater biofuel burning during the heating seasons in the Beijing area
355	A large contribution from residential sector

366 Contributions from secondary processes also show obvious seasonal variations trend.
377 Figure 4 shows scatter plot
379 The variation of correlation coefficient
392 Appel et al.: replace by final version
603 represented by different shaped points
612 Concentrations of each seasons
617 percentages of several species to some others: e.g. WSOC is not a species
621 Table 2: improve stove
mixed of gasoline and diesel vehicles
631 average contribution over than 1%

In addition:

Symbols should be italic.

References need harmonization in style.; e.g., paper titles should not be capital

SI

This needs editing as well.