In my opinion, the revised version of the manuscript has improved quite a bit. The authors have done a good job addressing the multiple concerns raised by the reviewers. I have a few remaining comments, mostly of technical nature:

Throughout the text: insert spaces between values and their units, for example, 170km -> 170 km

Figures: some of the figures in the PDF appear to have low resolution and are difficult to read without zooming into the figures. In particular, some of the axis labels, axis tick labels, and legends appear blurry. I would work on optimizing the resolution as well as size of the text used for annotating the figures. Figures 5 and 10 are especially difficult to read because of its large information content.

Line 84: the "intensity" of the emission is ambiguous; it is better to compare actual emissions factors in g pollutants per kg of burned coal. I am sure those have been measured.

Line 107: what is meant by "artificial intelligence" here? I looked up the info about the Laoying 2034 sampler, it appears to be a normal sampling instrument.

Line 132: please confirm that the station is only 20 m away. Do you perhaps mean 20 km?

Line 141: I think you should define what you mean by the "total cation concentration" in this sentence. Do you account for the different charge states of the ions [total positive] = $[Na^+] + [NH_4^+] + 2*[Mg^{2+}] + 2*[Ca^{2+}] + [K^+]$? Also, since your positive and negative ions appear to be balanced, does it mean that your PM2.5 is always neutralized (not acidic, with very low $[H^+]$)? If so this would be worth discussing because particle acidity is an important parameter in controlling SOA growth on particles.

Line 156: The proposed explanation for the lower than expected PM2.5 mass measured with TEOM needs more support. Instead of citing the Finlayson-Pitts book, please provide references proving that NH_4NO_3 and other volatiles are indeed depleted from PM2.5 measured with TEOM. I find it difficult to believe that 50°C would depletes things other than water from particles to a measurable extent. I suspect that other readers will also have doubts about that. So more references here would definitively help.

Line 158: is the 20% value based on your measurement done in this work or on measurements done by Yang et al. (2015)?

Line 163: the variation is **<u>not</u>** periodic, please see the suggested correction in the table below.

Lines 206 and 212: you are using molar ratios in some cases and mass ratios in others. It would help to be more uniform to avoid confusion.

Line 222: specify the amount burned in kg (or another appropriate SI unit) per year; use an appropriate unit modifier to get rid of the trailing zeros in the number. Example: 42 Tg/year

Line 232: since you are attributing high Cl^- to the use of NH_4Cl fertilizer, it would be useful to discuss a correlation between the chloride and ammonium ions in this period compared to other periods.

The use of English in this paper will need to be improved before the paper can appear in its final form in ACP. The table below lists some of the mistakes but it is not a comprehensive list. Given the high number of mistakes I am going to have to request a proof-reading service from the journal.

Line	Action	Text	New text
11	Replace	including Beijing	,which includes Beijing,
12	Replace	status	problem
14	Replace	as well as a rural	and in a rural
15	Delete	characteristics	
15	Replace	the PM2.5	PM2.5
16	Replace	for recognizing	to determine
17	Replace	made evident	made a significant
19	Replace	made evident contribution	contributed
21	Replace	were reasonably	could be
24	Delete	rationally	
27	Replace	evidences	evidence
28	Replace	made evident contribution	contributed
34	Replace	regions with	regions, which have a
47	Replace	status	problem
59	Replace	from the	from the emissions from
60	Replace	on both	in both
62	Replace	almost	often
63	Replace	agricultural	of agricultural
64	Delete	very	
65	Replace	focus on	occur in
76	Replace	prevailing	prevalent
80	Replace	striking	a
81	Replace	chimney	chimneys
82	Rephrase	I do not understand what you mean by "imagined by the strong smog"	
82	Replace	small	a small
88	Replace	daily collected	collected daily
91	Replace	evidences	evidence
95	Replace	A sampling … was chosen on	The sampling … was on
117	Replace	water	a
147	Replace	could well reveal the pollution status	could be used as an indicator of the pollution level
149	Delete	much	
150	Replace	Therefore, the … was suspected to be largely	It is possible that the … was underestimated

		underestimated	
157	Replace	accounts	account
161	Replace	variations	variation
161	Replace	statistic	average
163	Replace	daily variations of the WSIs at RCEES exhibited significantly periodic fluctuation	the concentrations of the WSIs varied greatly on timescale of days
165	Replace	the most frequently high	the highest
167	Replace	pollutants	pollutants'
176	Replace	fast thermal decomposition	reduced gas-to-particle partitioning
179	Replace	remarkable	large
180	Replace	would override the relatively low atmospheric photo-oxidants for their oxidation rates	would result in large sulfate and nitrate formation rates despite the lower concentrations of oxidizing species
181	Replace	resulted	result
188	Replace	seasonal variation characteristics	concentrations
189	Replace	comparatively illustrated	compared
196 and 197	Replace	parcel	parcels
199	Replace	made evident contribution	contributed
201	Replace	make evident contribution	affect
203	Replace	Without considering	With the exception of
203	Replace	concentration	concentrations
218	Replace the http link with a reference to one		
227	Replace	to be noted	to note
229	Replace	make contribution	contribute
238	Replace	, 2016	(2016)
246	Replace	storm	storms
249	Replace	make contribution	contribute
255	Replace	cultivation manner	method
266	Replace	were still kept high levels	remained at high levels
262-269	Split this very long sentence in 2 or 3 sentences		
276, 278	Replace	frequently	frequent
276	Replace	slow thermal decomposition	increased gas-to-particle partitioning at lower temperatures
283	Replace	magnitude	order of magnitude
286	Replace	water of particulate matters	aerosol water
305	Delete	well	

316	Replace	to be noted	to note
337	Replace	conspicuous	large
341	Replace	strongly periodic activities of farmers	farmers' activities
342	Replace	make evident contribution	contribute
344	Replace	aroused great attention	paid greater attention
571	Replace	Daily variations	Variation
571	Replace	The smooth	the smooth
576	Replace	Seasonal variations of the several typical WSIs	Concentrations of selected WSIs
578	Replace	grey square represented	areas shaded in yellow represent
593	Replace	proportions	fractions
598	Replace	concentration	concentrations