Unknown sources of HONO are one of important open questions for atmospheric chemistry. The authors analyzed thirteen datasets in literature andproposed the formula linking the flux of unknown HONO emission sources with other variables significantly correlated. They then incorporated the function into the WRF-chem model. The modeling results of HONO and free radicals were compared with those absent of the unknown sources in various zones in China. The study is indeed interesting and will significantly improve understandings of the impacts of unknown HONO emissions on atmospheric chemistry. This reviewer strongly believes that the work is worthy of publishing in ACP. The major drawback is related to technical writings and this can be done by language editing in the next round submission. This reviewer just lists a few of them which are very confusing and need to be clarified. The list is of course incomplete and the authors should work with native speakers to go throughout the entire manuscript sentence by sentence.

1) The title is not readable. In the context, there are at least two unknown sources for daytime HONO. Why is it "an unknown daytime nitrous acid source…"? The authors were using mixing ratio rather than mass concentration in the context, the title should be consistent with their results. "Those" represents what? Unknown source or other? What does it mean "coastal regions"? To this reviewer, the coastal region is very small and should be within 10-50 km range from seas.

2) Abstract, lines 13-16 and lines 18-20, the definitions of unknown sources are inconsistent and very confusing. This had to be clarified.

3) Abstract lines 25-27, "elevated" relative to what?

4) Abstracts, lines 20-36, the reviewer can guess the impact of additional HONO sources and the impact of $P_{unknown}$. From lines 36-50, the presentations are very confusing and need to be clarified what are impacts of additional sources and what are impacts of $P_{unknown.}$

5) Lines 73-75, "higher" than what?

6) Lines 79-81 "These high HONO mixing ratios, particularly in the daytime, cannot be explained well by gas-phase production (Reaction R1), suggesting that an unknown daytime HONO source ($P_{unknown}$) could exist." Here, the authors were clearly defining the $P_{unknown.}$ The definition is contradictory to the part presented on lines 36-50.

7) If what presented on lines 91-118 are reasonable, the definition of $P_{unknown}$ on lines 79-81 is problematic and authors should redefine $P_{unknown.}$

8) Section 2.1, the authors should explain explicitly why the dataset was used for testing.

9) Lines 192-194, the description is inconsistent with what the authors defined early. The sentences are suggesting what the authors' analysis presented before are also problematic. They need to be rewording.

10) Lines 214-215, please define coastal regions of China.

11) Lines 253-273, the authors should explain the metrics rather than listing the numbers.

12) Lines 253-288, the part does not read well and needs language editing.

13) Lines 289-295, try to use numbers instead of words such as minor, noticeable and substantial.

14) Lines 295-296, how come so many effective numbers for NME and NMB? The same problems are also applicable for other parts.

15) Lines 304-312, the logic is not straightforward and need to reorganize.

16) Lines 351-358, why sometimes use the average, but sometimes use the maximum. The jump is very confusing.

17) Lines 362-365, the sentences are not readable and need to be written.

18) Section 3.3 is short, but Section 3.4 is so long and need to be cut. The current form of Section 3.4 is difficult to follow.

19) The authors need to justify why BTH, YRD and PRD are selected for discussing, but not other cities.

20) Lines 367-376 can be cut largely because the similar results should be well documented in literature.

21) Lines 385-294, does Kanaya et al. (2009) and Hens et al. (2014) use the same approach for $P_{unknown}$? This should be clarified.

22) Lines 408-416 can also be cut largely since similar results should be well documented in literature.

23) Lines 417-487, the authors listed so many numbers which have been shown either in Tables and Figures. The authors should try to summarize these results to make the analysis to be easily understood.

24) Conclusion can be largely cut since they duplicate.