

## ***Interactive comment on “Significant increase of surface ozone at a regional background station in the eastern China” by Z. Q. Ma et al.***

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In the absence of a review from one of the initial referees, I am submitting my comments on the submitted manuscript in order to complete the open discussion on this paper.

As pointed out by Referee #1, this paper presents results from a station in China where little information is currently available. The atmospheric science community would therefore benefit with the release of the ozone data and the interpretation. Therefore, it is imperative that the authors make the data publicly available, either prior or simultaneously with the publication of their paper.

Major revision and re-review of the paper will be required prior to final publication. I encourage the authors to make this effort. Overall, I agree with the comments of Ref-

C11936

eree #1 and have some additional comments that the authors should address as listed below.

\* The communication of the scientific results from this work is severely hampered by the language used. The manuscript needs to be critically edited (line-by-line) by a native English speaker.

\* The reliability of the analysis results (short-term, seasonal, long-term components) is not clear. Although, some mention of variance is given in the text I do not find that very informative. For example, how sensitive are the results to the parameters of the filtering (smoothing) of the data. Is the data record sufficiently long to establish reliable results? Especially in the abstract, the uncertainty in the components and the rate of the daily maximum needs to be included.

\* Another general criticism is that several of the “conclusions” mentioned in the text are rather speculative and require a more quantitative analysis to support the author claims. Examples of this include: page 31956 “...which seems to coincide with increase of vehicles in eastern China areas.” page 31957 “... is due to abundant rainfalls...” page 31959 “We tried to add more meteorological factors” and “In summer, the temperature is not...” Page 31960 “We are inclined to believe...” The text needs to be revised to reflect accordingly.

\* Including a map of the site and possibly some indication of the prevailing meteorology would be very helpful to the reader.

\* Define QA/QC on page 31954

\* Page 31955: It is not clear how the filtering reflects “physical phenomena”.

\* Page 31958, why not show the correlation (or lack of) between temperature and ozone, it seems like this is an important issue.

\* Figure 3: what is the line on the graph?

C11937

\* Figure 4: Provide a complete stand alone figure caption instead of referring to another figure.

\* Figure 7: What does “noise-free” mean?

\* Figure 8: Specify where the NO<sub>2</sub> data used in this analysis came from. This also needs to be clarified in the text.

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Interactive comment on *Atmos. Chem. Phys. Discuss.*, 15, 31951, 2015.

C11938