This article summarized a semi-automated system and its application for quantifying the oxidative potential of ambient particles in aqueous extracts using the dithiothreitol (DTT) assay. Based on the authors' claim, this method is robust, efficient and more importantly time-saving. However, no information is provided on the conventional manual system or a comparison of the two methods was included. In terms of validation of the method, the authors' initiatives are commendable (e.g. conducting tests to determine instrument response, limit of detection (LOD), precision and accuracy).The spatial and seasonal variability analysis approach raises some confusion, specifically on how these correlations help to identify what types of sources are contributing. Including rationale behind using different parameters e.g. DTTv DTTM will be helpful for readers. In the result section, statement should be well supported by direct experimental results and any kind of presumption should be backed by examples from literature. More information is needed on the discussion towards health end-points and oxidative potential. Specific comments about the article are addressed below.

Comments:

1. Page 7354, section 2.3.2, line 13-14, The sentence 'The *other fraction was reserved for other chemical analysis*.' is redundant. Otherwise, please explain what are included in the 'other chemicals'.
2. Section 2.3.2, what is the recovery efficiency of the filter extraction process?
3. Section 3.1.4 line 17-18, what is the experimental protocol of the manual method mentioned here? Since the goal of this paper to portrait the robustness of the automated method over the manual one, a side by side comparison or detailed information may be helpful.
4. Section 3.2, page 7257, line16-18, why the CV for the blanks are relatively higher in comparison with the standards?
5. Section 3.2.2, page 7258, line 21-22, how the data/result interpretation helps to prove that the developed automated system provides comprehensive assessment? Is it based on the fact that a larger set of data was analyzed? The same objective could have been accomplished using manual protocol except longer time would be needed. Again a comparison of manual and automated system would be relevant.
6. Section 3.2.3, what is the rationale behind using both DTTv and DTTm to evaluate seasonal variability and then concluding (line18-20, page 7259) that "*higher seasonal differences in DTTm may suggest that the specific chemical that contributes to the oxidative potential of particles varies between seasons and originate from different sources*."
7. Section 3.2.3, both DTTV and DTTm were used to explain spatial variability and it was justified as both these parameters yielded low COD values. Please explain rationales for using these parameters.
8. Section 3.2.4. Why DTTv (instead of DTTm) was used to find out correlation between DTT activity and $PM_{2.5}$ mass concentrations? Based on the slope, it was concluded that the variations are due to varying PM chemical composition. It needs more discussion and logic behind such statement. Although, the authors tried to support the statement by the previous discussion on Anova/COD approach used for spatial/seasonal variability

analysis. Overall, both section- 3.2.4 and 3.2.4 needs more explanation and how it ties with chemical composition of the $PM_{2.5}$?

9. In the same section (3.2.4), line 16-18, "*This analysis suggests that DTT activity in the southeast is likely, to a significant extent, related to regional sources and not dominated by a single source or a limited number of species*". It is not clear how the data analysis supports which sources are dominating (single vs. regional).
10. Section 3.2.4, (page 7260), last paragraph, how water-soluble DTT activity is related to health end-points? This discussion on health-end points lacks sufficient background. How this discussion is tied with the automated system of measurement? Provide enough support/evidence behind the suggestion of PM oxidative potential in health studies.