

You have not corrected the issues raised by Reviewer #2, associated with the fact that your NO₂ measurements are actually NO_y-NO measurements. It is clear that the molybdenum oxide conversion technique responds to all NO_y species, indeed you use it for your PAN calibration. Yet, you have persisted in referring to the measurement as 'NO₂' in your paper, including in the section where you use 'NO₂' to estimate PAN thermal decomposition rate. You must correct these things before your paper can be accepted.

Correspondence

It is well known that NO₂ measurement using molybdenum converter has interference by NO_x compounds. In this study, this artifact would also increase the effective lifetime of PAN. Therefore, the statement regarding the positive artifact of the NO₂ measurement was added to Section 2 and this artifact was considered in the estimation of effective lifetime of PAN in Section 4.3. However, we left the term 'NO₂' in the manuscript because these concentrations were officially reported as NO₂ for Gosan site, which belongs to the national air pollution monitoring network. In the revised manuscript, the modified parts are marked in red and given below.

Manuscript revision

1) Page 6 Line 132:

It should be noted that NO₂ concentration reported in the present study is actually the sum of NO₂ and NO_x species due to well-known positive artifact of molybdenum converter. PAN is one of the major NO_x species and the ratio of PAN to NO₂ was $12 \pm 7\%$ for the whole measurements.

2) Page 12 Line 286:

During the haze event, NO was close to the detection limit, while NO₂ was greatly enhanced. Owing to the high NO₂/NO ratio, the effective lifetime of PAN increased by 57 ± 14 times; this possibly contributed to the gradual increase in PAN through the night on November 4th. For this estimation, PAN concentration was subtracted from the measured NO₂ concentration, considering the positive artifact by molybdenum converter in NO₂ measurement.