

## **Reviews for acp-2017-288-version2**

Second review of the manuscript entitled “Long-term (2001-2012) trends of carbonaceous aerosols from remote island in the western North Pacific: an outflow region of Asian pollutants and dust”. The revision is with significant improvement, but still some corrections are required before accepted for publication and I'm terming this again a minor revision.

Some technical edits are offered as following and listed below with other comments.

### **Specific comments:**

1. Line 26: were associated
2. Line 40: This point was
3. Line 78: (IPCC, 2013)
4. Line 140: were low or
5. Line 141: which were analyzed....
6. Line 161: were corrected..
7. Line 162: were less than..
8. Line 167: equation was used
9. Line 167–168: all trends were assessed by using
10. Line 170: analyses are
11. Line 180: “over South and Southeast Asia” Also add “East Asia”. Biomass burning is also more frequent in continental East Asia in winter. From BT and fire count analysis you are getting the intensity of biomass burning over all regions.
12. Line 181: air masses were
13. Line 183: air masses were
14. Line 190: There was...
15. Line 198: All measured species (EC, OC, and WSOC) clearly showed.....
16. Line 200: The seasonal variation in carbonaceous aerosols observed in this study was found
17. Line 204: In this version you're not discussing “synoptic wind circulation”. Replace it with “air mass back trajectories”.
18. Line 206: Relatively higher
19. Line 207: were lower

20. Line 210: air masses were

21. Line 234–236: “The OC/EC ratios > 2.0 have been used to point out the presence of secondary organic aerosols (SOA) (Cao et al., 2003; Chow et al., 1996; Kunwar and Kawamura, 2014)”. It is suggested to add one recent work on impact of Asian outflow over East Asia here as reference.

S. K. Pani, C. T. Lee, C. C. K. Chou, K. Shimada, S. Hatakeyama, A. Takami, S. H. Wang, and N. H. Lin (2017), Chemical Characterization of Wintertime Aerosols over Islands and Mountains in East Asia: Impacts of the Continental Asian Outflow, Aerosol and Air Quality Research, doi: 10.4209/aaqr.2017.03.0097.

22. Line 245: are the tracers

23. Line 254–256: which clearly showed that air masses were occasionally coming from Southeast Asia (e.g., Indonesia, Malaysia, and New Guinea etc.)...

24. Line 277: WSOC/OC ratios were....

25. Line 280: SOA formation was enhanced

26. Line 289: VOCs (Gilardoni et al., 2016; Youn et al., 2013) over continental East Asia.....

27. Line 305: It was seen

28. Line 376–377: The RF of aerosol is generally estimated by using the aerosol optical depth (AOD), single scattering albedo (SSA), and asymmetry parameter (Pani et al., 2016).

Pani, S.K., Wang, S.H., Lin, N.H., Tsay, S.C., Lolli, S., Chuang, M.T., Lee, C.T., Chantara, S. and Yu, J.Y. (2016). Assessment of aerosol optical property and radiative effect for the layer decoupling cases over the northern South China Sea during the 7-SEAS/Dongsha Experiment. *J. Geophys. Res.* 121: 4894–4906. doi:10.1002/2015JD024601.

29. Line 377–379: OC (except for brown carbon) and  $\text{SO}_4^{2-}$  mainly scatter the short-wave incoming solar radiation whereas EC strongly absorb the short-wave solar radiation as well as the long-wave outgoing terrestrial radiation in the atmosphere (Charlson et al., 1992; Ramanathan et al., 2001).

Charlson, R. J., S. E. Schwartz, J. M. Hales, R. D. Cess, J. D. Coakley, J. E. Hansen, and D. J. Hofmann (1992), Climate forcing by anthropogenic aerosols, *Science*, 255, 423–430.

Ramanathan, V., P. J. Crutzen, J. T. Kiehl, and D. Rosenfeld (2001), Aerosols, climate and the hydrological cycle, *Science*, 294, 2119–2124.

30. Line 918–920: Figure 3. Box-whisker plots of monthly variations of carbonaceous aerosol components ( $\mu\text{g m}^{-3}$ ) and some specific mass ratios at Chichijima Island in the western North Pacific during 2001-2012.
31. Line 977–980: Figure 4. Annual trends (time series) in the concentrations ( $\mu\text{g m}^{-3}$ ) of carbonaceous aerosol components, water-soluble ionic tracer compound ( $\text{MSA}^-$ ), and some specific mass ratios during 2001-2012 over the western North Pacific. The linear trend equation ( $y = mx + c$ ) is also shown for the each annual trend.
32. Line 999: Figure 5. Regression analysis between WSOC and MODIS-derived cloud condensation nuclei (CCN) concentrations over the western North Pacific.
33. The abscissa range of Fig. S1 and S3 should be consistent. Reposition the text (year) in X-axis to the middle and flip it to horizontal format as in Fig. S2. For Figure S3, please do the same.
34. Figure S2. Annual mean variations ( $\mu\text{g m}^{-3}$ ) of carbonaceous species, water-soluble ionic tracer compound ( $\text{MSA}^-$ ), and some specific mass ratios during 2001-2012 over the western North Pacific.
35. As biomass burning aerosol in SE and E Asia is concerned, a special issue (Nov., 2016) of the Seven South East Asian Studies (7-SEAS) on the journal of *Aerosol and Air Quality Research* gives the most updated information that can be included for comparison and discussion.