

Atmos. Chem. Phys. Discuss., referee comment RC3
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Comment on acp-2022-220

Anonymous Referee #3

Referee comment on "Measurement report: Effects of anthropogenic emissions and environmental factors on the formation of biogenic secondary organic aerosol (BSOA) in a coastal city of southeastern China" by Youwei Hong et al., Atmos. Chem. Phys. Discuss., <https://doi.org/10.5194/acp-2022-220-RC3>, 2022

I think this is a good submission to ACPD along the current line of thinking in atmospheric chemistry. The authors investigated ambient PM_{2.5} in coastal areas of South-eastern China and reported experimental distribution of the main organic tracers (mainly BSOA), water-soluble inorganic ions and gas phase species including HCl, HONO, HNO₃, NH₃. The analytical method (qualitative and quantitative) used by Hong et al. is well established for these oxygenated compounds. The results of this study show that the concentrations associated with SOA organic tracers depends on the photochemistry in summer, and on the emission of anthropogenic compounds in winter. The results of this study are interesting to the scientific community including modeling as it provides experimental link between photochemistry, anthropogenic emission and BSOA tracers in a coastal area of southeastern China. This work would be beneficial for publication under **Measurements Reports** after considering my comments below:

The analytical technique used IS and the authors should comment on the use of only one non-polar IS. I do recognize the difficulties of finding the correct IS due to co-elution issue with the number of oxygenated species that are detected in ambient PM_{2.5}. Ketopinic acid is used by several groups as IS as it could not be detected in ambient PM and is a polar oxygenated specie!!

Are additional compounds associated with isoprene detected (hydro-carboxylic acids)?

The authors should provide additional evidence from the present work on the interaction biogenic-anthropogenic and its effect on PM formation.