

## **5.099 Recent changes in the free tropospheric ozone over East Asian Pacific rim.**

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Abstract:

Evolution of tropospheric ozone including the current changes is of central interest in the understanding of oxidizing capacity, radiative forcing, and impacts on ecosystem. Although much attention has been paid to reconcile long-term trends of tropospheric ozone, in particular, at the surface level, the current state-of-science models still cannot reproduce the temporal changes in the northern hemisphere in a quantitative manner. In Asia, changes during the last decades are drastic in particular in the lower free troposphere, presumably associated with intercontinental influences. Current changes, however, cannot be sufficiently evaluated due to lack of updated inventories of anthropogenic emissions. In this study we integrate ozonesonde, surface, and aircraft observations to obtain robust trends of ozone in the free troposphere in the last decade with particular emphasis on recent years. We found that the changes are slowing down after 2010 in the lower free troposphere, while still monotonically increasing in the middle and upper troposphere, implying the slow down of the precursor emissions, and the enhancement of the stratospheric influence.