

# Decreasing trend of aerosol optical thickness associated with crop residue burning in Shangdong province observed from synthetic satellite data products

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Agriculture crop residue burning is an important source of aerosol pollutants. This presentation reports our study to obtain the aerosol change trend associated with crop residue burning from synthetic satellite products. We focus on Shangdong province which is one of the largest agricultural provinces in China. Specifically, we use Moderate Resolution Imaging Spectroradiometer AOT products, carbon monoxide (CO) product from the Measurements Of Pollution In The Troposphere, and fire pixel counts (derived from the active fire product) to evaluate the spatial and temporal variation of atmospheric aerosols during 2006 to 2017. First, a clear distinction of the AOTs was found in the two periods (2006–2011, and 2012–2017), with higher AOT in the first period, and weaker AOT in the second half period. Lower AOT in the second half period could be associated with tightening emission control policies. As an evidence, there has been a decrease in atmospheric loading for some anthropogenic aerosols over Shandong and neighboring provinces [1,2]. In addition to the AOT change, the spatial CO concentrations showed higher concentration (>200 ppbv) during 2006–2011 in the near surface level while lower concentrations (<200 ppbv) was observed during 2011–2017. This observation gives us confidence that the AOT change trend [3] was closely related to crop residue burning. Toward a better understanding of the various aerosol sources, we also report the isentropic back trajectory cluster analysis for the entire study period (2006–2017) by using the HYSPLIT model.

## References

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Preferred mode of presentation: Poster