Scientists call for long-term research on ozone source apportionment
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Oceanic Science Letters by the research team of Prof. Zhang Meigen, from the State Key Laboratory of Atmospheric Boundary Layer Physics and Atmospheric Chemistry, Institute of Atmospheric Physics, Chinese Academy of Sciences, summarizes the approaches and main conclusions of studies on the sources of ozone and its precursors for both regional and sectoral sources in China, including back-trajectory analyses and ozone source apportionment based on the observation-based method (OBM) and emissions-based method (EBM).

"The OBM avoids the uncertainties of the emission inventories required in the EBM. However, in practical applications, results based on the OBM are limited to a fixed time and fixed site, without the regional results obtained, due to the high requirements for the accuracy and representativeness of the observational data," explains Professor Zhang.

The results of ozone source apportionment over China suggest that, in addition to contributions from local and surrounding areas, super-regional (outside the simulated area) transport also makes a significant contribution to the high concentrations of ozone in China, indicating the importance of strengthening regional defense and control measures. Mobile and industrial sources are the major sources of surface ozone, and this is where future control actions should be focused.

"Existing ozone sensitivity analysis and source apportionment are mostly limited to a single ozone pollution episode or one particular month, with few long-term studies," says Professor Zhang. "In the future, more long-term research should be carried out to provide references for the development of emission reduction strategies to achieve long-term ozone attainment in China."

More information: Hailing Liu et al, A review of surface ozone source apportionment in China,
Atmospheric and Oceanic Science Letters (2020).
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