

QOS2016-259, 2016

Quadrennial Ozone Symposium of the International Ozone Commission

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## **Ambient ozone control in a photochemically active region: short-term despiking or long-term attainment?**

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China has made significant progress in decreasing ambient concentrations of most air pollutants, with ozone ( $O_3$ ) an exception.  $O_3$  mixing ratios during pollution episodes are far higher than its national standards, thus greater evidence-based control efforts are needed for  $O_3$  attainment. By using a validated  $O_3$  modeling system and the latest regional emission inventory, this study illustrates that control strategies in  $O_3$  short-term despiking and long-term attainment might not be concerted in the Pearl River Delta (PRD), a photochemically active region in China with peak  $O_3$  levels frequently exceeding the national standard. VOC-focused controls are more efficient in  $O_3$  despiking at urban and industrial areas, but significant reductions on  $NO_x$  emissions and subsequent transition into  $NO_x$ -limited regime are required for  $O_3$  attainment. By tracking  $O_3$  changes along the entire path towards long-term attainment, this study suggests to put greater control efforts on  $NO_x$  emissions region-wide. Parallel VOCs controls around Nansha port area are necessary in the summertime and should be extended to the urban and industrial areas in fall and be strengthened during  $O_3$  episodes. Contingency VOC-focused controls on top of regular  $NO_x$ -focused controls could hopefully achieve balance between short-term despiking and long-term attainment of  $O_3$  pollution in the PRD.