

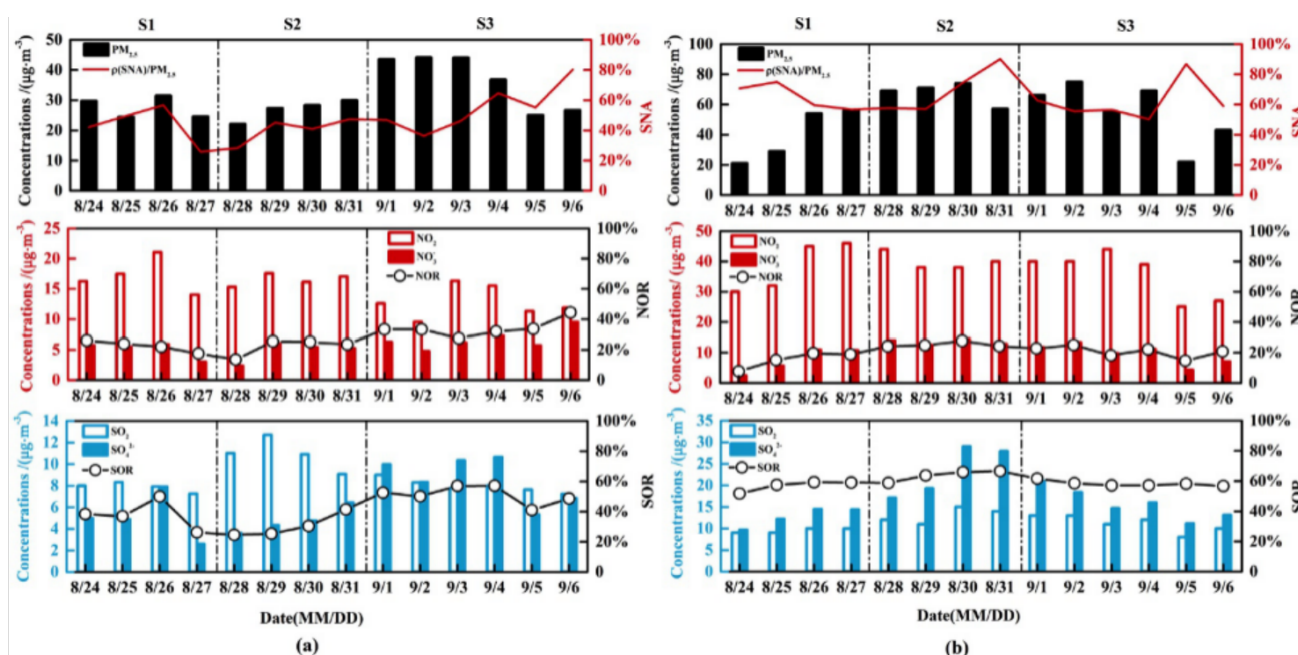
# Evolution and Assessment of the Atmospheric Composition in Hangzhou and its Surrounding Areas during the G20 Summit

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To evaluate the effectiveness of control strategies during the G20 Summit (August 24–September 6, 2016), five sites were selected for investigating the variation in air pollution in the city of Hangzhou and its surrounding areas. The results showed that the air quality in Hangzhou greatly improved after the implementation of strict emission controls. Compared to the same dates from the five preceding years, the G20 period exhibited low relative humidity during the early stage and no significant differences in other meteorological conditions. The  $\text{SO}_2$ ,  $\text{NO}_2$ ,  $\text{PM}_{10}$ , and  $\text{PM}_{2.5}$  concentrations averaged across the five sites in Hangzhou decreased by 42.6%, 57.1%, 36%, and 38.5%, respectively, although the average  $\text{O}_3$  concentration increased by 19%. These changes indicate that the emission reduction measures decreased the concentrations of several pollutants. Compared to the same dates from the previous year (August 24–September 6, 2015), the G20 period exhibited significantly decreased concentrations for most of the chemical components of  $\text{PM}_{2.5}$ , particularly  $\text{SO}_4^{2-}$ ,  $\text{NO}_3^-$ , and  $\text{NH}_4^+$ . Additionally, the aerosol optical depth (AOD) and the  $\text{NO}_2$  column concentrations followed a trend similar to that of the pollutants in this city.

Keywords: Air quality, Emission reduction, G20 Summit, Ozone sensitivity



Variations in sulfate, nitrate, and ammonia (SNA) in  $\text{PM}_{2.5}$ ; sulfur oxidation ratio (SOR); and nitrogen oxidation ratio (NOR) during (a) the G20 period (August 24–September 6, 2016) and (b) the non-G20 period (August 24–September 6, 2015).