

Characterization of Urban Ozone Pollution in Summer and Analysis of Influencing Factors

Authors : Fangting Gao

Abstract : Ozone acts as an atmospheric shield, protecting organisms from ultraviolet radiation by absorbing it. Currently, a large amount of international environmental epidemiology has confirmed that short- and long-term exposure to ozone has significant effects on population health. Near-surface ozone, as a secondary pollutant in the atmosphere, not only negatively affects the production activities of living organisms but also damages ecosystems and affects climate change to some extent. In this paper, using the hour-by-hour ozone observations given by ground meteorological stations in four cities, namely Beijing, Kunming, Xining, and Guangzhou, from 2015 to 2017, the number of days of exceedance and the long-term change characteristics of ozone are analyzed by using the time series analysis method. On this basis, the effects of changes in meteorological conditions on ozone concentration were discussed in conjunction with the same period of meteorological data, and the similarities and differences of near-surface ozone in different cities were comparatively analyzed to establish a relevant quantitative model of near-surface ozone. This study found that ozone concentrations were highest during the summer months of the year, that ozone concentrations were strongly correlated with meteorological conditions, and that none of the four cities had ozone concentrations that reached the threshold for causing disease.

Keywords : ozone, meteorological conditions, pollution, health

Conference Title : ICUC 2024 : International Conference on Urban Climate

Conference Location : Hong Kong, China

Conference Dates : September 26-27, 2024