



Urbanization and industrialization effects on haze in China: take Jinagsu for example

Duanyang Liu, Jiansu Wei, Zhiming Kang, Wenlian Yan, Lu Cao, and Hao Chen
Jiangsu Meteorological Observatory, Nanjing, China (Liuduanyang2001@126.com)

Since the policy of “Reform and Open to the Outside World” was implemented from 1978, urbanization and industrialization have been rapid in China, leading to the expansion of urban areas, industrial district and population synchronous with swift advances in economy. With urban industrialization development underway, the urban heat island (UHI) and air pollution are being enhanced, together with vegetation coverage and relative humidity on the decrease. Based on the surface meteorological data of Jiangsu Province during 1980-2012, the climatic characteristics and the trends of haze were analyzed. The results indicated that during 1980-2012 haze days increased; in particular, severe and moderate haze days significantly increased. In the northern and coastal cities of Jiangsu Province China, haze days showed a significant increase. Haze often appeared in fall and winter, and rare in summer in the study area. It also occurred more often inland, and less along the coast. Haze occurred more often in June due to straw burning in the harvest time. The haze day increased during the 1990’s over southern and southwestern Jiangsu Province; in central and northern Jiangsu, haze day increased after 2000. The continuous, regional and regional continuous haze days all showed increasing trends. As the urban area expanded each year, industrial emissions, coal consumption and car ownership increased accordingly, resulting in regional temperature increase and relative humidity decrease, which formed the urban heat island and dry island effects. Hence, haze formation and maintenance conditions became more favorable for more haze days, which led to the increase of haze days, and the significant increases of continuous, regional and regional continuous haze days.