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ANALYSIS OF A PERSISTENT SUMMER OZONE EPISODE AT A COASTAL SITE IN THE YANGTZE RIVER DELTA OF CHINA

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Abstract

A peculiar ozone episode with 17 day persistent exceeding the standard level was observed in summer 2007 at a coastal site in the Yangtze River Delta. This persistent ozone episode was analyzed using surface data of related compounds and meteorological conditions, as well as backward trajectories. According to the meteorological conditions, particularly wind direction, we divided this persistent episode into three stages. During the first and third stages, the site was significantly influenced by continental wind, which brought fresh pollutants from the nearby areas in the north Yangtze River Delta to the site. However, there was continuous maritime wind during the second stage, so the pollutants were more aged at this stage. The appearance of this persistent episode was mainly associated with the transport of pollutants from surrounding polluted areas and the favorable meteorological conditions for photochemical production and accumulation of ozone. The transport of pollutants was an external cause, while local photochemical production under favorable meteorological conditions was the internal and dominant cause for the ozone episode.

Key words: coastal site, HYSPLIT model, meteorological condition, ozone episode, photochemical pollution, Yangtze River Delta

Received: February, 2014; Revised final: November, 2014; Accepted: January, 2015
