

Variation of surface ozone and CO concentrations at a remote area in Thailand

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In Southeastern Asian region, as Thailand, both emissions by industrial activities and those from biomass burning can significantly affect atmospheric ozone and carbon monoxide (CO). Because this region locates just south of China, where industrial activity grows rapidly, influence of long-range transport of pollutants can be significant.

Since 2007, surface ozone and CO concentrations have been observed at Phimai, a rural area in Thailand. In this paper, variation of these concentrations were shown in comparison with those measured by Pochanart et al. (2000,2001,2003) at Srinakarin, remote area in Thailand.

Ozone and CO concentrations show obvious seasonal variation: they were low in wet season (June-September) and they repeated high and medium in early dry season (November-January), and they were significantly high during late dry season (local summer) during February to April. However, they were often higher in 2007-08 than those in 1997-98. That is partly due to difference of location of observatories, and urban, polluted air masses from Bangkok city area can be more frequently transported to Phimai than to Srinakarin during wet season. During early dry season, two type air masses was transported: air mass from East China Sea and air mass from Southern China. Ozone and CO concentrations in the air masses from South China significantly increased in 2007-08 in comparison with those in 1997-98, while these concentrations in the air masses from the East China Sea in 2007-8 were similar to those in 1997-98. This result shows that the transport of air masses from South China significantly affect ozone, CO and other concentrations in Southeast Asia during early dry season, and those concentrations in these air masses obviously increased during this decade, suggesting more influence of trans-boundary pollution.