

Chammalieng Choawthum 2009: The Effects of Meteorological Parameters on  $PM_{10}$  Vertical Profile in Urban Area. Master of Science (Environmental Science),  
Majer Field: Environmental Science, College of Environment. Thesis Advisor:  
Associate Professor Pricha Dammanonth, Ph.D. 127 pages.

The objective was to study the meteorological characteristic effect on  $PM_{10}$  concentration of the urban different heights. There were three study sites which were different urban sites SongKhla Bangkok and ChaingMai.

For the Songkhla the results showed that the maximum and minimum  $PM_{10}$  concentrations were found at the upper height,  $46.6 \mu\text{g m}^{-3}$ , and the middle height,  $41.3 \mu\text{g m}^{-3}$ , respectively. There are no obvious diurnal cycle because of raining in the afternoon and the evening. For the Bangkok, the maximum and minimum concentrations were found at the lower height,  $118.7 \mu\text{g m}^{-3}$ , and the upper height,  $112.3 \mu\text{g m}^{-3}$ , respectively. According to the urban activity, the diurnal study showed that  $PM_{10}$  concentration was decreased on 21.00-0.00 to 03.00-06.00 and increased on 06.00-12.00 and 15.00-21.00. The  $PM_{10}$  concentration was decreased by height. For the ChaingMai the maximum and minimum concentrations were found at the middle height,  $110.3 \mu\text{g m}^{-3}$ , and the upper height,  $91.9 \mu\text{g m}^{-3}$ , respectively. The diurnal study showed that  $PM_{10}$  concentration increased on 21.00-00.00 and decrease on 03.00-06.00. Then, the concentration increased on 06.00-12.00 as the urban activity.

For Songkhla, The  $PM_{10}$  concentration of the lower height was related with RH significantly ( $p < 0.05$ ). For Bangkok, The  $PM_{10}$  concentration of the lower and upper heights were related with wind speed significantly ( $p < 0.05$ ). For ChaingMai, There was no relationship between  $PM_{10}$  concentration and meteorological characteristic significantly. There were no relationship between  $PM_{10}$  concentration and mixing height significantly. However, The  $PM_{10}$  concentration decreased with mixing height.

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