366

SIZE DISTRIBUTION OF THE SUBMICRONIC AEROSOL IN A PARISIAN METRO STATION

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RATP has been running for almost two years a vast experimentation concerning PM10 mass concentration monitoring and chemical analysis in 20 underground metro stations. Given the growing interest for fine and ultrafine aerosol, one of these sites is equipped at the same time with two different instruments for investigating the aerosol size distribution. A metro station is equipped with a real-time PM10 mass concentration monitor and a sequential sampler to collect particles on filters for further chemical analysis. Besides one electrical low pressure impactor and one scanning mobility particle sizer are used for measuring the station aerosol distribution. A lab van parked outside the station has been provided with the SMPS for 48 h in order to get the Parisian submicronic size distribution. When observing the fate of the aerosol size distribution, there is a minimum particle concentration in every size range during night-time whilst maximum concentrations occurs between 6 am and noon. The use of two instruments operating with different principles and with different characteristics enables a comparison of data given by both techniques. The comparison is done for particle concentration over a common size range 29-260 nm. It appears that results given by ELPI and SMPS are extremely well correlated all along the experiment despite differences in the amplitude. It was showed a similar size distributions of outdoor and indoor aerosol. Outdoor and station air display very similar ultrafine aerosol distributions. Further studies are conducted to investigate the aerosol transfer existing between both environments.