

OD-MODELING OF CARBONACEOUS AEROSOLS IN URBAN PLUMES IN THE FRAME OF ESQUIF CAMPAIGN (IN PARIS, FRANCE) : ZOOM ON THE ORGANIC PARTICLE FORMATION.

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There is an important lack in the understanding of organic particle formation whatever their origin (biogenic and anthropogenic). Huge differences may appear by comparing their global budgets if only their primary origin is considered (Cooke et al., 1999), their secondary origin (Kanakidou and Tsigaridis K., 2000) or both (Liousse et al., 1996). We propose a way to test such differences by studying aerosol mixture in urban plumes. A OD aerosol module (Bessagnet et al., 2000) was used taking into account not only primary particles (black carbon (BC) and primary organic carbon (OCp)) but also formation of mineral and organic secondary particles (sulfates, nitrates, secondary organic particles (SOA..)). Gas precursors and primary pollutant emissions have been coupled to the module. Globally, a good comparison occurs between modeled and observed results for Paris study. Focus on carbonaceous aerosols shows that SOA formation is highly dependant on temperature and humidity conditions. Indeed, in Paris, a decrease from 56% to 34% in the modeled $OCp/(OCp+SOA)$ ratio is observed under warm and humid conditions and hot and dry conditions respectively. Also the $BC/(OCp+SOA)$ modeled ratio is increased from 23 to 37%. A key feature here is that same variation is obtained with experimental results (21 to 31%). The mean value chosen by Liousse et al., 1996 to derive emissions of total organic particle from BC is included in such a range. However, ongoing studies will allow us to determine spatial and temporal $BC/(OCp+SOA)$ variability including tests for cold period and another case of urban plumes in the frame of Ace Asia campaign.