

Atmospheric-pressure chemical ionization mass spectra of composition molecules of secondary organic aerosols

Kei Sato[1]

[1] NIES

http://www.nies.go.jp/asia/kenkyusha/sato_kei.html

Secondary organic aerosols (SOA) are produced by the atmospheric oxidations of volatile organic compounds emitted from vegetations and human activities. SOA have potential influence to climate, human health, and visibility. Although compositions of SOA have been mainly studied by using gas chromatography-mass spectrometry (GC-MS), the mass ratios of identified molecules to total SOA are still less than several ten percent. Since compositions of SOA are low volatile compounds, a liquid chromatography-mass spectrometry (LC-MS) is suitable for the analysis of these compounds. However, information of detection efficiencies and mass spectra measured by using LC-MS methods are limited. In this study, the detection efficiencies and mass spectra of about 50 known compositions of SOA which contain dicarboxylic acids, oxocarboxylic acids, carbonyls, phenols, and anhydrides were analyzed by employing a LC-MS method combined with an atmospheric-pressure chemical ionization (APCI) method in order to obtain database for the LC-MS analysis of SOA. The results of the analysis will be described in the presentation, and the ionization process of examined compounds will be discussed.