



Figure S1: Examples of EDX spectra of aerosol particle investigated in this study. (A) single particle containing neither Na^+/K^+ nor $\text{Ca}^{2+}/\text{Mg}^{2+}$. (B) “aggregate” particle containing Na^+/K^+ . (C) “aggregate with film” particle containing Na^+ and minor contents of $\text{Ca}^{2+}/\text{Mg}^{2+}$. (D) “mucus-like” particle containing $\text{Ca}^{2+}/\text{Mg}^{2+}$ and minor contents of Na^+ . (E) halo particle containing Na^+/K^+ and S probably in the satellite particles. (F) blank spectrum taken from a Pt-shadowed TEM grid.