

## **Chemical composition of fogwater collected in three contrasted sites in northeastern France between 2015 and 2018**

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The Alsace region of France experiences autumnal radiation fog that can play an important role in local atmospheric chemistry. For this purpose, radiation fogs were collected using stainless steel Caltech Active Strand Cloud Collectors (CASCC2) between 2015 and 2018 in three contrasted areas; one in rural (Erstein), one in peri-urban (Geispolsheim) and one in urban (Strasbourg) dealing to a total of 11, 25 and 16 samples respectively.

Fogwater samplers were operated manually during the totality of the fog event. Each samples were filtered through glass fiber filters and pH, conductivity, ionic composition (F, Cl<sup>-</sup>, Br<sup>-</sup>, NO<sub>2</sub><sup>-</sup>, NO<sub>3</sub><sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, SO<sub>4</sub><sup>2-</sup>, Li<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>, NH<sub>4</sub><sup>+</sup>, Mg<sup>2+</sup> and Ca<sup>2+</sup>) DOC and organic molecular speciation (pesticides, phenols, PAHs, organic acids,...) were done on the filtrate. Organic composition was done by SPME-GC/MSMS and LC/MSMS depending of the compound under study. Filters were analysed for their organic molecular composition.

pH varied between 5.6 and 6.7 and their whatever the considered site. PH value are higher than those previously measured in Strasbourg between 1991 and 1993 where pH values were strongly acidic (between 2.0 and 4.0). This observation can be explained by the strong decrease of acidic species in fogwater samples.

The ionic composition presents in general the same tendency with ammonium and nitrates as the predominant cations and anions. Ammonia and nitrates remains in the same order of magnitude between the three sites (rural, peri-urban and rural).

DOC varied between 0.68 and 37.68 ppm and were generally more concentrated in the peri-urban areas than in the urban.

Chemical organic speciation presents also some variabilities depending on the site and on the period of sampling of the fog event.

All data obtained will be discussed and presented in details during the conference.