



CYCLE DE CONFÉRENCES DE CHIMIE

*Avec le concours de : Université Clermont Auvergne
INP Clermont Auvergne*

Mercredi 16 avril à 16 h

Amphi Rémi (site des Cézeaux)

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Long-term Trends in Organic Carbon Concentrations within Cloud Water and Precipitation Samples in the Northeastern United States

Recent research at Whiteface Mountain, one of the few remaining sites in the U.S. where long-term cloud water chemistry research has continued to the present day, has revealed a doubling in cloud water organic carbon concentrations since measurements began in 2009. This dramatic increasing trend was an unexpected result, which requires further investigation.

Our work attempts to verify these results using additional independent datasets from within the region and explores potential driving factors behind the observed organic carbon trends. Through evaluation of measurements from four additional sites in the north eastern U.S., each with long-term measurements of organic carbon concentrations within bulk cloud water or wet deposition samples, we show that there is strong evidence for a regional increasing trend in organic concentrations within aqueous atmospheric samples. These results provide further context behind the growing inorganic ion imbalance observed in wet deposition samples collected across the eastern U.S. and Canada, as identified in previous study published in 2021.

We discuss hypotheses for the potential driving factors behind the increasing organic carbon trends observed, including increased biomass burning influence, increased biogenic emissions and a changing chemical regime characterized by relatively high concentrations of reactive nitrogen chemical species.

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