Insights into Future Impacts of Climate Change on VOC Emissions from UK Agricultural Environments

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Abstract

Agricultural environments are a significant source of volatile organic compounds (VOCs) to the atmosphere and have a wide range of sources including livestock, fertilisers, grassland and crops. These environments are under increasing stress from escalating demands and climate change, all of which has an impacts on VOC emissions, from soil microbial activities to the strategic timing of agrochemical applications. Here we present ambient VOC emissions from a multi-reagent ion chemical ionisation mass spectrometer (MR-CIMS) from a farm in Devon, UK in April 2024. Complementing the field observations, we present measurements from laboratory experiments including proton transfer reaction mass spectrometer (PTR-MS) measurements of VOC emissions from automated soil chambers using samples collected from the site during the campaign. Characterisation of these measurements show how recent heavy rainfall events impact VOC emissions and as such elucidate how climate change may impact VOC emissions from agricultural environments.

Early Career Scientist

YES, I am an early career scientist.