



Putting Constraints on the Life Cycle of NMVOC based on Ecosystem Scale Flux Measurements

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Large quantities of non methane volatile organic compounds (NMVOC) enter the atmosphere. The annual production of NMVOC (600 -2000 TgC/a) likely exceeds that of methane and CO (~ 500 TgC/a each). Together these gases fuel tropospheric chemistry. Oxidation of NMVOC leads to the formation of aerosol via complex organic chemistry in the gas and aerosol phase thereby modulating the oxidation capacity of the atmosphere. It is currently believed that a large fraction of NMVOC originates from biogenic sources (e.g. $>80\%$). The life cycle of organic carbon is ultimately controlled by emission and deposition processes at the surface. Uncertainties in budgets of NMVOC and potential ramifications for organic aerosol production in the atmosphere will be discussed based on a synthesis of direct NMVOC flux measurements performed in a range of different ecosystems.