



Spatial Heterogeneity of NO Soil Emissions at the Hombori Mali AMMA Site: Link with Microbial Activities

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NO emissions from soil would be of comparable intensity as fossil fuel combustion at the global scale. Emissions in West Africa are of special interest since frequent convective episodes are observed in this region, with subsequent impact on the upper tropospheric chemistry. We report here results of a two-week campaign performed in the region of Hombori, Mali, at the beginning of the wet season. NO emissions from soil were measured using dynamic chamber and an ozone-chemiluminescence analyser. All classical meteorological parameters, and particularly, soil temperature and moisture, were recorded for the whole period. A set of 186 individual measurements of NO fluxes is available for analysis. These measurements are representative of eight different sites representative of the region, each site encompassing a range of locations with the landscape. Spatial heterogeneity of the fluxes was investigated from the flux database. We also tested to what extent flux heterogeneity could be explained by the spatial heterogeneity of soil characteristics and two key soil microbial activities, namely nitrification and denitrification, as measured in the laboratory on a set of 58 soil samples. We will analyse the relationship between in situ and laboratory measurements, and will identify the main processes driving NO emission for soils at the experimental sites.