Biogeosciences Discuss., 12, C7063–C7064, 2015
www.biogeosciences-discuss.net/12/C7063/2015/

Biogeosciences
Discussions
Open Access

Interactive comment on "Distribution of tetraether lipids in agricultural soils – differentiation between paddy and upland management" *by* C. Mueller-Niggemann et al.

J. Tuo (Referee)

jctuo@ns.lzb.ac.cn

Received and published: 26 October 2015

This manuscript fall into the scope of BG and it contains sufficient scientifically merits and can be published in BG. The Figs and Tables were well organized and the results discussed in an appropriate and balanced way.

In this manuscript, Dr Mueller-Niggemann et al collected comparable soil samples in various locations from tropical (Indonesia, Vietnam and Philippines) and subtropical (China and Italy) sites to compare the local effects on GDGT distribution patterns and determined the influence of different soil management types on the GDGT composition in paddy (flooded) and adjacent upland (non-flooded) soils, bushland and marsh soils.

The results indicated that Agricultural management was a major factor that controlled the distribution of the archaeal community in soils. Management induced variations of GDGT containing microorganism and also induced differences in the archaeal community structure. Monocyclization of brGDGT is strongly controlled by pH. Moisture is an important environmental variable affecting the distribution of brGDGT in soil. Moisture is also known to affect soil temperature, in particular in surface soils. Management type affects the MST, which in turn controls the membrane lipid composition of brGDGT producing bacteria. Warm and humid environments favour the growth of bacteria that produce brGDGT. The pH value and the soil moisture controlled the distribution of brGDGT during long-term paddy soils usage.

Interactive comment on Biogeosciences Discuss., 12, 16709, 2015.