

HGG002-P01

Room: Convention Hall

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Research plan of "Atmospheric methane and agriculture in monsoon Asia" : an introduction

Sachiko Hayashida^{1*}, AMAMA project team¹

¹Faculty of Science, Nara Women's Univ.

Among anthropogenic greenhouse gases (GHGs), CH₄ is the second most important after carbon dioxide (CO₂) in terms of radiative forcing. About 40% of the CH₄ sources are estimated to be agricultural, including rice cultivation, ruminant animals, biomass burning, and animal wastes. Therefore, the quantification of CH₄ emissions from rice fields and livestock is essential to evaluate measures to mitigate increasing GHG emissions from agriculture.

Yan et al. (2009) examined mitigation potential of CH₄ emissions from rice cultivation by using the bottom-up emission inventory data with IPCC Tier 1 (2006) model. However, there are many uncertainties and questions if the mitigation approaches are really effective to reduce CH₄ emissions, because there is a large diversity of factors that control CH₄ emissions. The Asian monsoon region is a major source of CH₄ because about 90% of the rice fields in the world are in this region, where drastic land-use change and frequent biomass burning due to slash-and-burn agriculture also affect the atmospheric environment and meteorology.

On the basis of the background mentioned above, we are proposing a new project -Atmospheric Methane and Agriculture in Monsoon Asia- to pursue effective ways to design preferable agriculture methods for the next generation with the goal of achieving a low-carbon society from the perspective of suppressing GHGs. We are planning to conduct the research with field measurements, fieldwork, computer simulations, and analysis of various statistical data and remote sensing data especially from space. We are going to report our achievement of the feasibility study.

References

Yan, X., H. Akiyama, K. Yagi, and H. Akimoto (2009), Global estimations of the inventory and mitigation potential of methane emissions from rice cultivation conducted using the 2006 Intergovernmental Panel on Climate Change Guidelines, *Global Biogeochem. Cycles*, 23, GB2002, doi:10.1029/2008GB003299.

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