

The variations of ORP in the paddy soil and effects on the methane emission from a periodically irrigated paddy field.

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Oxidation-Reduction Potential (ORP) in the paddy soil was measured during rice cultivated season at a periodically irrigated paddy field, and some effects on the methane flux from the paddy soil was investigated. ORP showed rapid decrease when irrigation water was introduced in the paddy field, and lower ORP was shown under the longer flooded condition. From the seasonal-term point of view, lower ORP was shown in later rice season. ORP was suitably modeled as a function of irrigation time. During an irrigation period for four days, higher methane emissions were shown under lower ORP conditions. From the seasonal-term point of view, however, no significant relationship between ORP and methane fluxes. It is suggested that seasonal change of methane flux is affected by seasonal changes of soil temperature and the growth level of rice plants.

Keywords: Rice Paddy, Methane, soil, Oxidation-Reduction Potential