

## 土壌呼吸チャンバーネットワークを用いたアジア陸域生態系におけるCH<sub>4</sub>フラックス測定の展開 CH<sub>4</sub> Flux of Asian Terrestrial Ecosystems Based on a Soil Respiration Chamber Network

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Methane (CH<sub>4</sub>) is the second important greenhouse gas (GHG) after carbon dioxide (CO<sub>2</sub>), because CH<sub>4</sub> has a relative global warming potential 28-36 times of CO<sub>2</sub> at a 100-yr time horizon. Moreover, atmospheric CH<sub>4</sub> concentration has doubled since 1800 and contributes about 20% to the global radiative forcing. Recently, a process-based coupled biogeochemical model estimated that CH<sub>4</sub> emission from global terrestrial ecosystems was 144.39±12.90 Tg C/yr with an increasing rate of 0.43±0.06 Tg C/yr between 1981 and 2010 (Tian et al. 2015). The dominant sources of CH<sub>4</sub> are nature wetlands and rice fields.

Asian wetlands occupy vast areas from tropical peat swamp forests in Southeast Asia to boreal marsh in Northeast Asia, and as well as alpine meadow on the Tibet Plateau. Furthermore, Monsoon Asia is the largest rice-producing area. The countries of this region together produce 90% of the global output of rice. Thus, Asia plays an important role in the regional exchange of CH<sub>4</sub> between terrestrial ecosystems and the atmosphere. However, currently Monsoon Asia is under various pressures such as land-use and climate changes. Quantifying CH<sub>4</sub> balance is helpful for understanding their response and feedback to the changing world, and simultaneously is critical for setting targets for GHGs (e.g. CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O) emission reductions and to identify and promote mitigation strategies. This talk will present CO<sub>2</sub>/CH<sub>4</sub> fluxes and their controls of a meadow peatland on Tibet Plateau, a larch forest in central Japan, and a tropical rainforest in the Peninsular Malaysia by using multichannel automated chamber systems.

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