Japan Geoscience Union Meeting 2015
(May 24th - 28th at Makuhari, Chiba, Japan)

ACG30-18 会場:301B 時間:5 月 25 日 15:30-16:00

経験モデルを用いた土壌 N_2O ガス放出の全球スケールの推定
Global estimation of soil nitrous oxide emission using a semi-empirical model

橋本 昌司 [1*]
HASHIMOTO, Shoji[1*]

[1] 森林総合研究所
[1]Forestry and Forest Products Research Institute

Nitrous oxide (N_2O) flux is one of the major greenhouse gas fluxes from terrestrial ecosystems. N_2O is generally released from soil surface to the atmosphere. In this study, a semi-empirical model was developed through modifying a model for soil CO_2 flux (Raich et al. 2002), and the global distribution of N_2O flux from soil was examined. The model consists of the functions of nitrogen, air temperature, and precipitation and the parameters of the functions were determined using a global dataset of N_2O emission (Stehfest and Bouwman 2006). The model was applied at a spatial resolution of 5-minute and at a monthly time resolution.

The preliminary calculation revealed that the total amount of N_2O emission was 14 Tg N yr^{-1}, and the monthly flux showed a clear seasonality, and was highest in August and lowest in February. The dry natural land is the major source of N_2O emission while the dry cultivated land was the second major source. Latitudinally, the flux was high around 30 — 40 degreeN and 10 degreeS — 10 degreeN. These results were still based on limited data, especially for wet ecosystems, and will be updated in future.

キーワード: 土壌, 亜酸化窒素, モデル, 窒素
Keywords: soil, nitrous oxide, model, nitrogen