

ACG031-09

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## 放射炭素同位体を用いたアラスカツンドラ・タイガ生態系における土壌有機炭素の滞留時間の推定

### Radiocarbon-based estimates of residence times for soil organic carbon of Tundras and Boreal forests in Alaska.

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High-latitude soil organic carbon (SOC) stocks are of particular interest because warming is expected to be greatest and induce acceleration of SOC decomposition at high latitudes, raising questions about the fate of SOC. However, merely knowing the size of the reservoir of carbon stored in soils is sufficient for predicting its potential to influence atmospheric CO<sub>2</sub> concentrations. We must also know something about soil carbon dynamics in high-latitudes.

Our objects in present study are to obtain the data of residence times and rate of CO<sub>2</sub> production from heterotrophic respiration of SOC. We conducted soil, soil CO<sub>2</sub> and soil respired CO<sub>2</sub> sampling in 2 Tundras, 3 Boreal forests and 1 Tundra-boreal forest ecotone along Dalton highway in Alaska in September 2009 and measured these <sup>14</sup>C. <sup>14</sup>C values of SOC suggested that boreal soils had large amount of SOC above permafrost because of high accumulation rates. We also estimate residence times and rate of CO<sub>2</sub> production from heterotrophic respiration of SOC. We inform about these results and examine substrate of soil CO<sub>2</sub> using <sup>14</sup>C in this conference.

キーワード: 土壌有機炭素, 放射性炭素同位体, 滞留時間, 北極域

Keywords: Soil organic carbon, Radiocarbon, Residence time, Arctic region