Geophysical Research Abstracts
Vol. 20, EGU2018-18732, 2018
EGU General Assembly 2018


# Monitoring greenhouse gas emission dynamics of forest-to-bog restoration in Scottish blanket bogs

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Scotland holds about 13% of world's blanket bogs and Scottish peatlands store ∼1620 Mt of carbon, which accounts for about 56% of total carbon in Scottish soils. However, the majority of Scottish peatlands (>80%) are degraded to some degree, mainly due to human intervention such as drainage, harvesting and afforestation, causing them to act as net sources of carbon to the atmosphere. The restoration of damaged peatlands has the potential to re-establish their carbon sink capacity.

In the Flow country of northern Scotland, large areas of pristine peatland were afforested during 1950-1980s. Currently, these afforested areas are being restored by felling the forest stands and blocking drainage ditches and furrows. The initial impetus for this restoration came from a need to protect and enhance the international importance of the Flow Country for biodiversity, although the carbon benefits could be equally significant. In order to better understand the time-dependent impacts of peatland restoration on carbon, water and energy dynamics in the area, we have established an age-sequence of four flux sites, which include: a near-pristine peatland, a mixed Sitka spruce and Lodgepole pine plantation planted on deep peat, and two recently restored sites (13- and 19-years-old). In this talk we compare the greenhouse gas dynamics of the four sites.