

Terrestrial Carbon Cycling: Insights Gained through Radiocarbon Analysis and Interpretation at SPRUCE, Ngee-Arctic, and AmeriFlux

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Understanding and modeling terrestrial carbon cycles is a key goal for BER. Radiocarbon is a valuable tool for determining the transit time of carbon in the terrestrial biosphere and for tracking carbon as it moves into, through, and out of ecosystems. In many systems, particularly those in high latitudes, radiocarbon can be used to identify the mobilization and loss of carbon from the large, old reservoirs found in soils including peat and permafrost. This poster highlights recent work applying radiocarbon and other Lawrence Livermore National Laboratory capabilities to BER-related research efforts in terrestrial carbon cycling. Current work at SPRUCE focused on carbon accumulation and the source of emitted methane and carbon dioxide with short-term experimental warming and highlights from recent work on dissolved organic carbon age and chemistry at the Ngee-Arctic Phase I site in Barrow, Alaska will be presented. New efforts to constrain soil carbon turnover and cycling at AmeriFlux sites through data synthesis, reanalysis, and model-data comparison will also be included.