Monitoring of soil organic C and its changes over time. (S07-jandl084141-Oral)

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Abstract:

Standard procedures to measure the size of the soil C pool and its change are necessary to address to the C sequestration potential. That potential might have to be identified at various spatial scales - national/regional/local (compare Kyoto Protocol). The change of a C pool between inventories can only be verified on the basis of accurate methodologies with estimated uncertainties. Depending on (a) temporal (seasonal) variability and spatial distribution, and (b) expected rate of change, different sampling densities are required to detect a change at a given level of accuracy and precision. In this report soil C distribution and sampling strategy are evaluated based on three different national data sets (Sweden, Germany, Austria). Attention is paid to soil bulk density, stone content, soil depth. Sampling densities are suggested with respect to spatial distribution, assumed change rates and wanted precision levels. Microscale variability is compared with the macroscale variability at different scales. Data sets are subdivided into several subsets, in order to minimise heterogeneity of C-stocks and to suggest the most homogenous stratum and optimal upscaling factors.

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