Globally, soils hold more carbon than the atmosphere and total terrestrial biomass combined. The bulk of soil carbon is soil organic carbon (SOC), a dynamic pool which receives inputs from plants and releases carbon mainly by microbial respiration. Imbalances between these SOC inputs and outputs can cause soil to become a carbon source or sink to the atmosphere, thereby exacerbating or mitigating the problem of greenhouse gas-induced global warming. Therefore, many recent land management efforts have focused on maintaining and increasing SOC stocks.

A major management challenge for SOC is the pace at which it changes. It can often take years for a measurable change in SOC to occur. This timescale makes it difficult for managers to evaluate the effectiveness of their actions in time to change course. Therefore, identifying reliable indicators of SOC change is crucial for managing SOC stocks.

A good indicator of SOC change should represent processes over time.