

# Carbon buried deep in ancient soils

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(Phys.org) —The unearthing of significant carbon stores in deep soils by scientists from the UK and Australia has substantial implications for climate change activities globally.

Professor Mark Tibbett of Cranfield University and Professor Richard Harper of Murdoch University in Australia found [carbon stocks](#) buried in deep soils. The levels were between two and five times more than would commonly be reported in soils sampled to depths of only 30cm.

Reports on the [carbon content](#) of soils only exist to depths of a few metres, although it is known that many soils are much deeper than this, particularly outside of the glaciated landscapes of [northern Europe](#) and North America.

Professor Tibbett said: "An understanding of carbon cycling is vital for combatting global warming and soils are crucial as they hold the largest terrestrial store of carbon worldwide. This discovery has [profound implications](#) for carbon accounting as there is now a significant pool of [soil carbon](#) that has not been reported previously. We anticipate this work will demonstrate the need for a reassessment of the current IPCC sampling depths and may require a revision of global soil carbon estimates."

An extensive soil sampling program in the abundant deeply weathered terrain of [southern Australia](#) analysed soils to depths of nearly 40 metres and found carbon in small concentrations but in significant total amounts.

The results of this research have further implications, as Professor Tibbett explains; "This study poses a series of fascinating questions that now need to be examined such as; how abundant are these stores globally? What is the composition of this deep carbon and what is its fate in relation to land use and climate change in regions where deep soils exist? In particular we need to consider what the effects of land use and climate change are on deep carbon stores; how stable are they and are they growing or shrinking? The answers could have major implications for worldwide CO<sub>2</sub> estimations."

The paper entitled "The hidden organic carbon in deep mineral soils" was published this week in *Plant & Soil*.

**More information:** [doi:10.1007/s11104-013-1600-9](https://doi.org/10.1007/s11104-013-1600-9)  
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Provided by Cranfield University

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