



Uncertainty in soil carbon-climate change feedbacks

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Enhanced release of CO₂ from soils due to increased temperatures may lead to a positive feedback between climate change and the carbon cycle, resulting in much higher CO₂ levels and accelerated global warming. However, the magnitude of this effect is uncertain and critically dependent on the response of soil respiration to changes in climate. Previous studies with the Hadley Centre's coupled climate-carbon cycle GCM (HadCM3LC) have compared the HadCM3LC simple single-pool soil carbon model to the more sophisticated RothC multi-pool soil carbon model. The results showed strong similarities in the behaviour of the two models, although RothC tends to simulate smaller changes to global soil carbon amounts for the same forcing. Here, we investigate one aspect of uncertainty in these predictions. We will use multi-member ensembles (the QUMP project) to investigate the impact of climate model parameter uncertainty on predictions of the soil carbon-climate feedback.