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Negative emissions from soils: the role of soils in meeting the Paris Agreement targets

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The Paris Climate Agreement commits signatories to pursue efforts to keep global temperatures well below 2 degrees C above pre-industrial temperatures. Further, there is an aspirational target to limit warming to less than 1.5 degrees C above pre-industrial temperatures. Integrated Assessment Models show that it is now extremely unlikely that these targets can be met through greenhouse gas emission reduction alone, and that greenhouse gases will need to be removed from the atmosphere. Methods to remove greenhouse gases from the atmosphere are known as negative emission technologies (NETs) or carbon dioxide removal (CDR) methods. Land based NETs include afforestation and bioenergy with carbon capture and storage, and in the soil, include soil carbon sequestration and biochar additions to the land. In this talk we outline the potential and limitations of soils based NETs globally, and examine synergies and trade-offs with other ecosystem services and sustainable development goals.