Red Soil CZ: From natural to anthropogenic evolution of Red Soil and its impact on ecosystem function in the Critical Zone

Brief Profile

Red Soil CZ builds on China's only international CZO (Sunjia) through a China/UK link that will provide a more in-depth understanding of soil processes that drive the ecosystem services delivered by this fragile resource. Intensive weathering from a subtropical monsoon climate makes red soil infertile, prone to serious soil erosion, acidification and nutrient depletion. To China, the study of red soils is incredibly important as they support 40% of the population, account for 50% of national agricultural production value and cover 20% of the land area. The project builds on existing monitoring of the Sunjia CZO by incorporating subsurface and atmospheric processes not included in the past. Further experiments in the lab and the field to explore impacts of environmental threats such as climate change, water scarcity and acid rain.

The project provides training to project partners in interdisciplinary science that is essential to CZO research and will benefit the research capabilities of the Chinese team.

The project brings new skills to the Chinese team in terrestrial modelling.

Partners

UK: University of Aberdeen (Lead UK Research Organisation); University of York
China: Institute of Soil Science – Chinese Academy of Sciences (Lead China Research Organisation), Tianjin University; Nanjing University of Science and Technology;; University of Science & Technology of China; Guangzhou Institute of Eco-Environmental & Soil Sciences

Project web-link

http://gtr.rcuk.ac.uk/projects?ref=NE%2FN007611%2F1

Project status

On-going (2016-2018)

Outputs

(1) Helps quantify China's 'food footprint' for red soils by integrating information on crop productivity with other ecosystem services.

(2) Informs how pressures on water resources, pollution, climate change and mis-management affects red soil sustainability.

(3) Provides direct engagement with policy makers through a dedicated workshop and existing links to national, Guangduang and Jiangxi government agencies.

(4) Trains Chinese team in multidisciplinary science, publishing research in international journals, working with large data-sets and environmental modelling.

(5) Retains Sunjia in the global CZO network and contributes novel science on red soil resilience and its impact on a broad range of ecosystem services related to poverty alleviation and environmental sustainability.

Funder

NERC/NSFC

Contacts

Paul Hallett (UK): paul.hallett@abdn.ac.uk

Ganlin Zhange(China): glzhang@issas.ac.cn