



From the Critical Zone to decision support tools for China's agriculture

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A number of critical zone observatories across China have focussed on human impacts caused by agriculture, particularly the sustainability of soil and water resources. Using the CZO approach of measuring from the top of vegetation, through soil, to the bedrock below, joint China/UK projects at these CZOs have quantified large pools of previously undocumented nitrogen stored at depth, pathways for water loss and pollutant transport and drivers of accentuated soil erosion. Socioeconomic studies have found that these challenges to land and water resources tie in well with the concerns of farmers. In two different regions of China, farmers identified fertilisers as their greatest cost and water availability as their biggest challenge. Using large data-sets generated over the past 4 years in these projects, we are developing Decision Support Tools (DSTs) underpinned by CZO science that can guide farmers and policy makers. The work addresses food and water security in the context of climate change and diminishing resources, with an aim to improve livelihoods and sustainable economic development. We have been guided by a review of over 400 DSTs designed for agriculture and the environment, which have been ranked in terms of their outputs and data requirements. A goal at the EGU will be to develop links with other CZO projects to help with our DST development.

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