Understanding the spatial patterns of agriculture in southern Africa

Lead supervisor: Dr Casey Ryan casey.ryan@ed.ac.uk

This project will use EO data and geo-statistics to address a key question relating to the sustainability of small-scale agriculture: where do farmers choose to put their fields, and how does this relate to the environmental impact of deforestation?

Most work to date assumes that farmers locate new farms on an “average” patch of forest and use this to calculate the loss of carbon when the forest is cleared to make a farm. However, farmers are extremely motivated to locate farms on land that is more fertile, nearer to their homes and in general in a better location than average. This might mean that farms are located on land that has higher carbon stocks (in soil or vegetation) or is more prone to erosion - which would mean deforestation has a greater impact than normally assumed.

This project will investigate this issue with a remote sensing study in Mozambique, combining new data on land use change with existing field data on farm location and soil quality. These will be combined in a geo-statistical model driven by land cover change data. If interested there will be a chance to conduct some lab work to estimate soil quality based on existing soil samples.

The project will involve close working with other researchers in the group who were part of the original study, as well as wider participation in an active and diverse group of researchers interested in land use change in southern Africa.