

High Spatial Resolution Commercial Satellite Data Applied to the Study of LCLUC on Islands

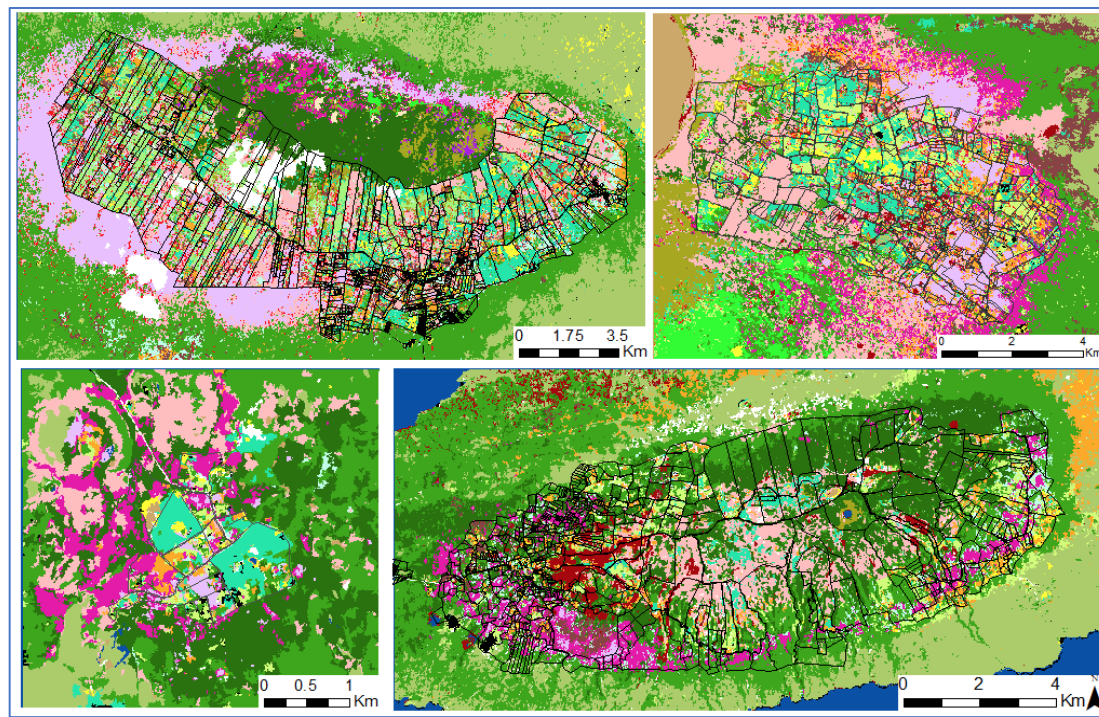
Stephen Walsh, University of North Carolina at Chapel Hill

Purpose: Monitoring of sensitive ecosystems and urban-rural interfaces

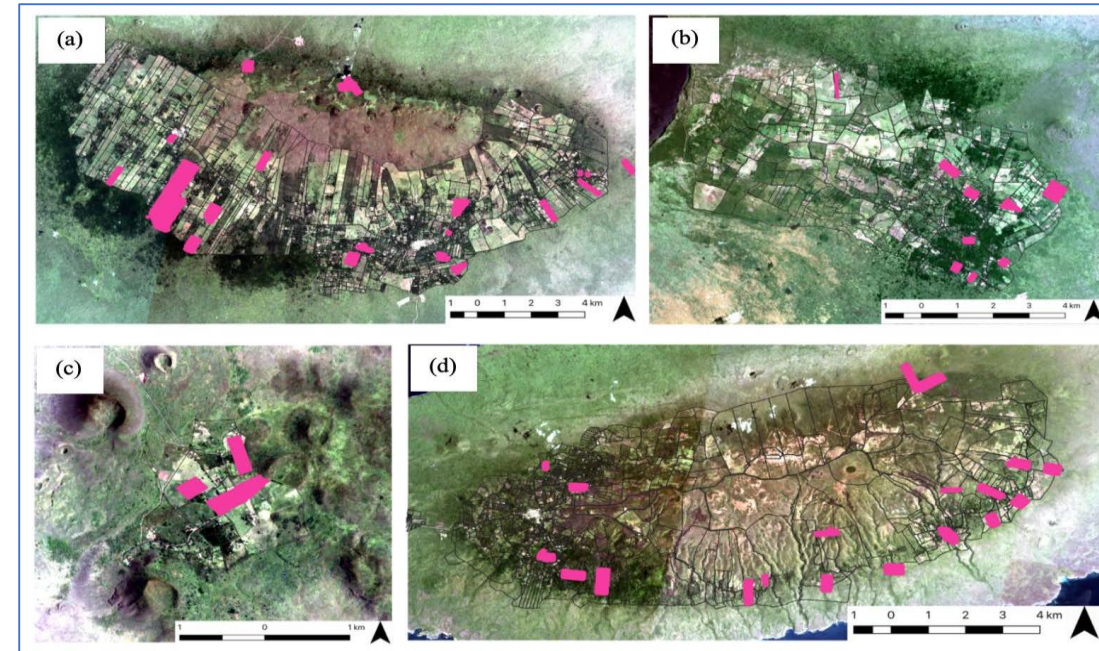
Study Objective: Investigate and fine-tune Deep Convolution Neural Network (DCNN) architecture for characterizing small-scale agriculture and rural-urban transition on the Galapagos Islands of Ecuador, and assess habitat transformation and fragmentation along the migratory pathways of endangered Galapagos Tortoises

Imagery: PlanetScope

Findings: PlanetScope imagery was effective for mapping of household farms, small scale agricultural plots, unimproved local roads & trails, invasive plant species, and migration trails of Giant Tortoises as well as barriers to their movement. High temporal resolution affords capture of nearly cloud-free images in the tropics. Combining sensors of high spatial resolution (PlanetScope) with high spectral resolution (Sentinel-2) yield highly accurate results.



Classified multi-date imagery from PlanetScope were used to map small-holder agriculture on delineated farm plots, including invasive species on the four populated islands.



PlanetScope classifications were verified using UAVs (unmanned aerial vehicles) to collect data for selected control farms that are highlighted for the four populated islands.