



High resolution mapping of Soil Organic Carbon content at landscape scale by multi-band imagery

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To detect change in soil organic carbon (SOC) content at landscape scale, it is necessary to have SOC content maps with the best accuracy. However, the traditional methods are time consuming and expensive. To map SOC content with traditional methods, lots of samples and environmental covariates are needed. Moreover, accuracy of these maps depends of the sampling design and the spatial pattern of the SOC content. New methods are developed, like the one based on the multi-band imagery. Most of studies take multi-band images at high altitude and regional scale. However, this scale includes different types of soils which could induce errors in calibration. This study proposes a method to map SOC content using multi-band images at low altitude and landscape scale. From these multi-band images, we reconstruct the soil spectrum. This spectrum is calibrated with some SOC content samples. Next, the performance of this map is compared to a map obtained by a traditional method. Thus, this method provides a map of the SOC content with a high resolution and improves accuracy. Moreover, the implementation of this procedure requires not much time and samples, thus cheapest.