Field Scale Soil C and Texture Mapping:Point Soil Data Co-Kriged with Bare Soil Imagery. (S06-varco105255-Oral)

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Abstract:

Accuracy in mapping spatial patterns in soil C and texture is sampling density dependent and associated labor and costs limit the scale. High resolution bare soil imagery could provide information at unsampled locations depending on the degree of cross-correlation between imagery and soil properties. Our objective was to use a multivariate approach to enhance interpolation of point sampled soil C and texture data. Soil samples were taken on a 0.82 ha grid and analyzed for soil C, sand, silt, and clay. Bare soil multispectral imagery from an aerial platform was obtained at an altitude of 3650 m and a spatial resolution of 2 m. Digital imagery was collected with a three camera system, with each camera affixed with a narrow bandpass filter (+ or - 5 nm) at a wavelength of 540 nm, 695 nm, or 895 nm. Co-Kriging of point data with reflectance at each waveband was used to develop soil C and textural analysis maps. Resulting maps showed an enhancement in spatial detail at unsampled locations.

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