

## Publication

## A simple spectro-goniometer for collection of multiple view angle reflectance factors

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Field spectroradiometers are widely used for environmental applications where data describing visible and near-infrared reflectance factors are of interest. Recent developments in spaceborne and airborne instruments with multiple view angle (MVA) capabilities have resulted in a demand for ground measurements to support these missions. Lightweight portable spectroradiometers offer an appropriate means of collecting MVA spectral reflectance factor data because they are more easily manoeuvrable than other spectroradiometers, but their physical capabilities have not yet been explored in this context. This letter presents the results of a focused experiment aimed at evaluating the field capabilities of a miniaturized Ocean Optics instrument in MVA settings for soil surface roughness applications. MVA hemispherical-conical reflectance factors were collected in situ from soil surfaces whose roughness was determined using a laser profiling survey. The results showed a significant negative relationship ( $R^2=0.74$ ;  $p<0.01$ ) between directional reflectance factors measured at 870 nm in the forward-scattering region and a soil structural measure derived from laser profiling data. This corroborates the results of other published studies and suggests that Ocean Optics instruments can be used to support hyperspectral MVA investigations.

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