A Multi-angular and Multi-temporal Study using CHRIS Hyperspectral Imagery

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SUMMARY

Spectral variations of remotely sensed land surface imagery are affected by the angle of observation and the time of acquisition. In recent years, remote sensing instruments have been deployed for surface retrieval studies with the capability to acquire multi-angular imagery. One such instrument is the Compact High Resolution Imaging Spectrometer (CHRIS), mounted on the PROBA satellite. What differentiates the CHRIS sensor from other multi-angle instruments is its ability to acquire hyperspectral data, as opposed to the more common multi-spectral data.

We present initial results of a multi-temporal study using CHRIS multi-angle imagery. We used two different spectral modes to assess cotton fields in New South Wales, Australia. Lab and field experiments of multi-angular data were used to complement the CHRIS data to explore the multi-angular relationships of cotton and soil spectra. Several analyses were applied, including variations in directional spectral reflectance, vegetation indices, and within-paddock crop/soil spectra variability.

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