Spectral Characteristic of full Wave Band Measured by ASD Fieldspec Pro Spectroradiometers and D&P Model 102 Portable Field Spectrometer

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Abstract:

Spectral characteristic of full wave band was measured by ASD Fieldspec Pro Spectrora diometers(350 - 2500 nm) and 102 Portable Field Spectrometer in order to discuss the spectral characteristicbetween the visible bands (blue and red) with the 3.75um.

The FieldSpec FR spectroradiometer is designed to collect solar reflectance, radiance and irradiance measurements with 10 nm spectral resolutions and a 0.35-2.5 μm spectral range covering the entire solar reflected portion of the spectrum.

D&P Model 102 Portable Field Spectrometer is designed to measure surface emissivity and spectral radiance in the infrared, it has the spectral range of 5000 - 625 cm-1 (2-16 μm) and spectral resolution of 6 cm-1 (1.6 nm-6 nm), field of view of 2.4°/4.8°. The method of calibration is discussed in detail, and the calibrated formulary is given. A golden plate which has low emissivity is used to measure the downwelling radiance, thus the emissivity of samples can be calculated and the corrected method of error is given. Several algorithms for separating temperature and emissivity from collected target's radiance spectra data are presented.

Many kinds of objects were measured by ASD Fieldspec Pro Spectroradiometers and 102 Portable Field Spectrometer, including blacktop, cement, maize, wheat, clover, hungriness, desert, saline-alkali land and so on. We will introduce a method to measure the spectral characteristic of full wave band, and especially discuss some notices in the process of measuring in this paper.

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