

EVALUATION OF ATMOSPHERIC EFFECTS IN HIGH SPATIAL/SPECTRAL RESOLUTION AIRBORNE IMAGERY

D. Williams

Dept. de génie électrique, Université de Sherbrooke,
Sherbrooke, Québec, Canada

O'Neill, N.T., A. Royer

Centre d'applications et de recherches en télédétection (CARTEL),
Université de Sherbrooke, Sherbrooke, Québec, Canada

Miller J.R., J. Freemantle

Centre for Research in Experimental Space Science (CRESS),
York University, Toronto, Ontario, Canada

ABSTRACT

Airborne imaging spectrometer data sets have been collected over several terrestrial sites accompanied by simultaneous solar transmittance data or surface spectral reflectance characterization of several ground targets. These data sets include multi-altitude images of a landfill sight and of Lake Ontario acquired by the Fluorescence Line Imager (FLI), multi-altitude images of coastal sites collected by the Compact Airborne Spectrographic Imager (CASI) over Baie des Chaleurs, Québec, and high altitude images acquired by NASA's Airborne Visible and Infrared Imaging Spectrometer (AVIRIS) over Jasper ridge in California and over Whiteface Mountain, NY.

All data sets show contamination effects due to atmospheric scattering and absorption. The impact of the atmosphere on the retrieved spectra is analyzed both in terms of extracting atmospheric optical information and in terms of elimination this influence for purposes of deducing the ground surface reflectance. Results are presented which demonstrate the influence of the atmospheric adjacency effect on spectral signatures in transition regions between areas of low and high reflectance.