

CHAPTER 2 - SUPPLEMENTAL  
HYPERSPETRAL REMOTE SENSING OF WHITE MICA: A REVIEW OF IMAGING AND  
POINT-BASED SPECTROMETER STUDIES FOR MINERAL RESOURCES, WITH  
SPECTROMETER DESIGN CONSIDERATIONS.

A paper published in *Remote Sensing of Environment*

Reprinted with permission from Elsevier

John M Meyer<sup>\*1,2</sup>, Raymond F. Kokaly<sup>2</sup>, Elizabeth Holley<sup>1</sup>

## **1 Comparison of Convolved Spectra and Measured Spectra**

Eight mineral samples in the U.S. Geological Survey (USGS) spectral library that were measured with both the Nicolet spectrometer and ASD spectrometers were selected in order to validate the use of convolved spectra (Clark et al., 1990) to model the effects of varying sampling interval and bandpass on the determination of the white mica 2200 nm combination feature position. The white mica 2200 nm combination feature position of six white mica samples measured with the USGS ASDNG and two white mica samples measured with the USGS ASDFR were compared to the results obtained using Nicolet spectra of the same mineral samples convolved to the ASDNG and ASDFR characteristics (Figure S.2). Good agreement is shown in the positions of the white mica 2200 nm combination feature of the eight white mica samples when measured in the laboratory using the ASDNG and ASDFR and when calculated using the Nicolet spectra that have been convolved to the characteristics of the ASDNG and ASDFR

---

\*Primary researcher and author

<sup>1</sup>Department of Mining Engineering, Colorado School of Mines, Golden, CO, USA, 80401

<sup>2</sup> United States Geological Survey Box 25046 MS 973 Denver CO 80225-0046

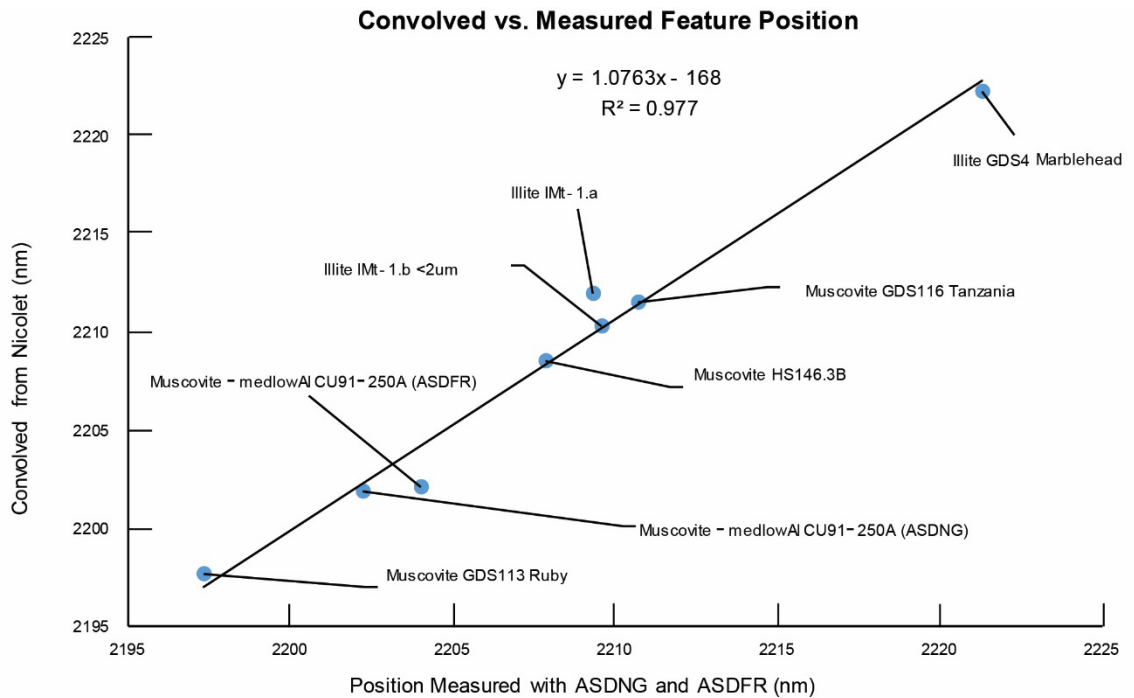


Figure S.2. Comparison of the position of the white mica 2200 nm combination feature in eight USGS white mica samples as measured with an ASDNG and ASDFR point spectrometers vs the same samples convolved from spectra measured using the Nicolet spectrometer.

Any use of trade, firm, or product names is for descriptive purposes only and does not imply endorsement by the U.S. Government.

## 2 References

Clark, R.N., King, T.V., Klejwa, M., Swayze, G.A., & Vergo, N. (1990). High spectral resolution reflectance spectroscopy of minerals. *Journal of Geophysical Research: Solid Earth*, 95 (B8) 12653-12680. DOI: <https://doi.org/10.1029/JB095iB08p12653>.