

## **U22B-04**

### **Landscape Discrimination in Brazil Using Hyperion Data and Self-Organizing Map Approach**

*Luiz E. Vicente<sup>1</sup>, Michael J. Friedel<sup>2</sup>, Fabio Iwashita<sup>3</sup>*

1. Embrapa - Brazilian Agricultural Research Corporation, Campinas, Brazil, 2. United States Geological Survey, Lakewood, CO, USA, 3. Desert Research Institute, Reno, NV, USA

We demonstrate the efficacy of an unsupervised artificial neural network, called a self-organizing map (SOM), to facilitate modeling and classifying targets based on images from the EO1-Hyperion hyperspectral sensor. Preprocessing of these images included their conversion to reflectance values with atmospheric corrections based on a radiative transfer model. The elimination of water absorption bands and overlapping among VNIR and SWIR bands resulted in a set of 158 spectral bands. The proposed methodology is able to discriminate signals obtained from a spectral library indentifying landscape elements in Brazil, such as different types of soil, pastures and grasslands at a larger scale.