

Reprinted from

**Eleventh International Symposium**

**Machine Processing of**

**Remotely Sensed Data**

with special emphasis on

**Quantifying Global Process:**

**Models, Sensor Systems, and Analytical Methods**

**June 25 - 27, 1985**

**Proceedings**

Purdue University  
The Laboratory for Applications of Remote Sensing  
West Lafayette, Indiana 47907 USA

Copyright © 1985

by Purdue Research Foundation, West Lafayette, Indiana 47907. All Rights Reserved.

This paper is provided for personal educational use only,  
under permission from Purdue Research Foundation.

Purdue Research Foundation

# INTEGRATED TERRAIN MAPPING WITH DIGITAL LANDSAT IMAGES IN MEXICO

M: S. PEREZ, J. L. AGUILAR, AND A. R. ALCANTARA

Depto. de Teledeteccion, Direccion Gral. de Geografia, San Antonio Abad No. 124  
06820 Mexico, D.F.

## ABSTRACT

Assuming an integrated spectral response from soil, vegetation and terrain in semi-arid areas, an analysis of the feasibility of utilizing the digital classification techniques of Landsat images to identify integrated terrain units was conducted in north-eastern Mexico.

The integrated unit concept was taken from the definition - proposed by Stuart, et. al. where it is considered as the total vertical profile in any site on the earth's surface, from the aerial environment to the geological horizon...

The sampling was done in sites selected randomly for the nine more abundant spectral classes of the image. This was classified by the unsupervised method utilizing the maximum likelihood algorithm.

The analysis is designed to determine the accuracy with which the existence and intensity of an association between a spectral class and any terrain attribute can be decided.

Most of the spectral classes were defined in terms of different attributes of the vegetation, soil or landform; the vegetation cover, general surface color and occasionally, dominant species in the communities were the most important elements in defining the classes.

The homogeneity of the classes seemed to be improved in areas with the same fisiographic and climatic conditions.