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Generating Character Maps on a Remote Terminal by Use of Simplified Software

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DETERMINATION OF PLANIMETRIC FEATURES BY

INTERACTIVE IMAGE PROCESSING

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ABSTRACT

In aerial photography since roads and other man-made structures are small compared to natural features, their edges are usually indistinct from the background and are often undetected by automatic systems. A major problem in the development of such systems is the delineation of boundaries around areas containing features of interest. The computer is often unable to accomplish the detection process alone. Therefore, it is reasonable to combine the superior pattern recognition abilities of a human being with the computational power of a digital computer to form an interactive system.

In this paper, an interactive feature extraction system is discussed. The hardware consists of a CDC-6400 sequential computer, a Goodyear STARAN associative array processor, a DEC PDP 11/50 minicomputer, image display, digitizing and recording devices. The feature extraction program for the interactive system consists of a series of routines which were installed in the system. The routines were written in FORTRAN and/or the STARAN assembly language according to the intended application in order to efficiently use the computers.

GENERATING CHARACTER MAPS ON A

REMOTE TERMINAL BY USE OF SIMPLIFIED SOFTWARE

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ABSTRACT

By use of a simple function to be known as a Natural Classification Function, multispectral signatures of 13910 LANDSAT pixels were classified into categories each of which when plotted on a character map, was found to correspond with a definable ground feature. Classification of the multispectral signatures was done in two stages. In the first stage, 65 categories were generated on the basis of the Natural Classification Function in which the independent variables are the reflectance values of multispectral signatures of pixels. In the second stage the 65 categories were merged into seven realistic categories on the basis of the variance of pixels within each category. The ground features represented on the character map are six plant associations and open bodies of water.

At a cost of less than $50 for analysis of data and generating character maps for about 20 square miles, the method is considered to be a good tool for rapid exploration using LANDSAT Multispectral Data.