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LARS CONTRACT REPORT 051883

QUARTERLY PROGRESS REPORT

FOR

LANDSAT-4 IMAGE DATA QUALITY ANALYSIS

FOR PERIOD INCLUDING

FEBRUARY 9, 1983 - MAY 9, 1983

NASA CONTRACT NAS5-26859

TO: NATIONAL AERONAUTICS & SPACE ADMINISTRATION
GODDARD SPACE FLIGHT CENTER
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Introduction

This report covers work done on NASA Landsat-4 data quality evaluation under Contract NAS5-26859 for the third quarterly period, February 9 through May 9, 1983. This period consisted primarily of results-presentation activities which included presentation of papers at the Goddard Symposium, American Society of Photogrammetry Convention, and International Symposium on Remote Sensing of Environment at the University of Michigan. Planning was conducted to outline the research tasks to be pursued throughout the remainder of the study. This will be a brief quarterly report which will primarily list the results presentations and their content.

Problems

No significant data or procedural problems occurred during the quarter. TM and MSS data for three of the four designated test sites have been received. No acquisition for the southern Indiana site exists; however, the Jacksonville, Florida acquisition is permitting analysis to continue for the type of scene content expected from the Indiana site.

Significant Results

Results of the study were presented at conferences and symposia. The presented and poster papers are listed below.

Landsat-4 Early Results Symposium. GSFC, Feb. 22-24, 1983:

1. Spatial Resolution Estimations of Landsat-4 TM and MSS Data.
2. Evaluation of the Radiometric Quality of the TM Data Using Clustering and Multispectral Distance Measures.

American Society of Photogrammetry Convention, Mar. 17, 1983

3. Landsat-4 Data Quality Evaluation Results.

Purdue School of Electrical Engineering Industrial Institute Seminar, Apr. 7, 1983

Poster paper on Results of Landsat-4 Data Quality Evaluation.

17th International Symposium on Remote Sensing of Environment, May 9-13, 1983.

Poster paper on Results of Landsat-4 Data Quality Evaluation.

The posters and papers have been received with praise and several more presentations are scheduled in the future.

Publications

No publications, other than the presentations cited above, were generated in the quarter.

Recommendations

No recommendations are made in this quarter.

Funds Expended

The funds expended on the project are reported periodically by the Purdue Office of Contract and Grant Business Affairs to the sponsor on NASA Form 533M. These are issued monthly. Specific disclosure of funds expended in this report is not allowable.

Data Utility

Very high data utility is being achieved. Misregistration problems in existing data sets have been corrected at our laboratory. Significant banding is observed in thermal mapping results. However, analysis shows this is due to a shift of only one bin. The dynamic ranged is extremely low (standard deviation of 5 bins) for the thermal, so this problem is accentuated. This is a data-utility problem but not a severe one.