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FOURTH QUARTERLY (TYPE II) PROGRESS REPORT

Project Title: Development of a Multi-disciplinary
ERTS User Program in the State of Ohio
Ref. 20900

Contract Number: NAS5-22399

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(E76-10487) EVALUATION OF LANDSAT-2 DATA
FOR SELECTED HYDROLOGIC APPLICATIONS
Progress Report (National Oceanic and
Atmospheric Administration) 3 p HC \$3.50

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Prepared for

GODDARD SPACE FLIGHT CENTER
Greenbelt, Maryland 20771

Scientific Investigation Support
Code 902.6
Contract No. NAS5-22399
ERTS Investigation No. 20900
Item No.2

Section A - Problems

1. Total cloud free, haze free, haze free coverage of the State has not yet been accomplished, therefore, marginal quality data has been ordered to complete the coverage. The coverage has caused delays in processing by the subcontractor Bendix Aerospace and necessitated amending their contract to extend the period of performance. These delays could effect the completion of the inventory by ODNR. It is expected that the final completion date will be governed by the progress in the digitiation of political boundaries for entry into OCAP.

2. Socio Economic Merging With Landsat Data

This section of work waiting on results of inventory.

3. Services Development

The only problem at this time is associated with the Economic Development Forestry Resource Management portion where small scale aircraft coverage over the test site has not yet been satisfactorily accomplished.

Section B - Accomplishments

1. Section B - Accomplishments

The geographic boundary digitizing team was trained during the period and eighteen counties including all township boundaries were digitized. In addition the USGS 7 1/2 minute quad files also exist for each county.

Discussion of the format of the output products and some estimates of costs brought about a preliminary product definition. The preliminary product would be a line printer output of each quad in the requested boundary (township, county, state, etc.) with an accompanying clear mylar transparency of the 7 1/2 minute base map. Data in the quad would be limited to be within the boundary of interest and all statistics (number of acres and percentage of each land use) would be printed out for the area of interest.

Bendix has categorized approximately sixty percent of the state, and is refining the categorization at this time.

FOURTH QUARTERLY (TYPE II) PROGRESS REPORT CONTINUED

2. Socio-Economic Merging With Landsat Data

A land use change inventory is being generated using 1973 and 1975 1:24,000 scale photography for Franklin County. The inventory will be used in the determination of error in the land use change inventory generated from Landsat data. Further work is being done on land use change models utilizing the data in preparation for receipt of the Landsat results. Landsat data from two overlapping scenes one day apart Franklin County have been processed. The intention is to map the data into the same quad cells by the nearest neighbor technique so that a land use change map can be produced in order to analyze error in land use change due to the geometric correction technique.

3. Service Development

TASK TITLE: Urban Land Use Analysis (Franklin County)

During this reporting period, analytical technique options were evaluated to determine the best method and/or combination of methods for preparing a land use map of Franklin County, Ohio, using NASA high-altitude color IR photography. Those selected procedures will be used to compare A/C and LANDSAT results. These analysis efforts have begun as well.

TASK TITLE: Lake Erie Sedimentation Pattern Analysis

General background information of task significance has been accumulated. Several interactions with Ohio State University Lake Erie Program personnel have taken place to acquire specific information and data from on-surface measurements required for the correlation analysis with LANDSAT imagery. Multidate Landsat data have been screened and selected for subsequent analysis of sedimentation trends.

TASK TITLE: Mining/Exploration Implications

Task activities during this reporting period involved interactions with Ohio Geological Survey personnel to acquire appropriate information/maps on existing mineral sites and gas and oil fields in Ohio. Selected LANDSAT imagery has been examined for anomalous surface features of potential geological interest. Field activities to acquire spectral signatures of selected sites in Morrow County, Ohio, were arranged to coincide with the NASA high-altitude photography overflight. Arrangements are being made to acquire the consulting services of a local exploration company to assist in assessing the exploration significance of the task results.

TASK TITLE: Analysis of Woodland Areas in Trumbull County

Groundtruth was collected in Trumbull County during May in anticipation of a NASA overflight over the area which occurred on May 22, 1976. Detailed observations were made in selected areas near Mosquito Creek Reservoir of stand compositions, species, and conditions of maturity. A detailed correlation will be possible as soon as the high altitude photography flown over Trumbull County becomes available for analysis. If it is not of high quality NASA may be required to reflly this study site area.

TASK TITLE: Feasibility of using LANDSAT For Power Siting and Power Corridor Selection

LANDSAT imagery has been analyzed to determine if it can be used to determine parameters pertinent to siting and corridor selection. Among these are economic, social, and environmental factors which are currently being derived from aircraft and ground observation. Overlays of a single LANDSAT scene are being prepared which show terrain and cultural features which must be considered in the location of power plants and power corridors in Ohio.

Section C Significant Results

1. None at this time
- 2.
- 3.

Section D Publications

1. None

Section E Recommendations

1. None

Section F Funds Expended

4. Total Funds expended for this contract by the end of May 1976 are \$44,723 of which \$12,960 are state cost sharing.

Section G. Data Use

	<u>Value of Data Allowed</u>	<u>Value of Data Ordered</u>	<u>Value of Data Received</u>
Landsat	\$16,700	4,956	4,956
CCT	5,600	1,600*	1,600*
Aircraft	1,008*	667	667

*CCT shown as 1800 in Third Quarterly was in error; Aircraft Third Quarterly allowed value of 1800 was in error.

Section H. Aircraft Data

1. Duplicates of the August 18th NASA AMES flight were received by Bendix Aerospace for use in training set selection. On May 22, 1976 NASA AMES U-2 flew the requested test sites for Forestry management, Lake Erie Sedimentation study and Mineral Exploration preliminary report was that cloud cover may be a problem on at least one test site.