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(E73-10802) APPLICATION OF EREP IMAGERY TO FRACTURE RELATED MINE SAFETY HAZARDS AND ENVIRONMENTAL PROBLEMS IN MINING Quarterly Progress Report (Earth Satellite Corp.) 3 p HC $3.00 CSCL 08I G3/13 N73-27277 Unclas 00802

NASA Johnson Spacecraft Center
Earth Observations Division
Houston, Texas 77058

RE: First Quarterly Progress Report SKYLAB Contract NAS-9-13358

Dear Sirs:

Earth Satellite Corporation (EarthSat) is pleased to submit a quarterly progress report for the period of April 20, 1973 to July 20, 1973. To facilitate, for review by NASA, a consistent format has been adopted for this and all future reports:

TITLE: Application of EREP Imagery to Fracture-Related Mine Safety Hazards and Environmental Problems in Mining

PRINCIPAL INVESTIGATOR: Dr. Charles E. Wier

CO-INVESTIGATORS: Dr. Frank J. Wobber
Mr. Roger V. Amato
Mr. Orville R. Russell

OVERALL STATUS:

(1) Imagery: No SKYLAB imagery has been received to date. All pertinent background data, ground truth, and maps related to mine safety, fracture mapping and mining and the environment have been assembled in preparation for SKYLAB imagery analysis.

(2) Ground Truth Data Acquisition: SKYLAB 2, EREP Overpass - June 10, 1973. Data were gathered at 10:30 A.M. EST (prior to the overpass), 11:30 A.M. (approximate time of overpass) and at 1:00 P.M. (after the overpass) in the vicinity of Monroe Reservoir in the east-central part of the test area. The data obtained included both dry and wet bulb air temperature, air humidity, soil moisture

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and temperature readings for both bare and planted farm fields, wind velocity, and water temperature of Lake Monroe. The bulk of these data will be used in the analysis of the EREP thermal band imagery.

(3) Administration: A program management (Milestone) plan was submitted to NASA. This plan is subject to change because of uncertainty in the receipt and nature of SKYLAB data.

RECOMMENDATIONS:

The investigators have submitted a recommendation that final reporting be coordinated with the ERTS Program Office so that the ERTS and SKYLAB Final Reports can be combined.

EXPECTED ACCOMPLISHMENTS:

- Additional fracture data to supplement ERTS-1 Mine Safety Investigation will be gained.
- Additional data inputs for mined land reclamation will be obtained. EarthSat's prototype National Mined Lands Inventory Map at 1:250,000 scale and other Mined Land Inventory products will be updated using SKYLAB images. Emphasis will be on the early reporting of significant uses and results of SKYLAB data.
- Areas mined for materials other than coal, such as sand and gravel, limestone, and clay will be mapped.
- Areas of environmentally degrading features resulting from mining such as mine refuse dumps, slurry ponds, acid mine drainage, and mine subsidence will be identified.

SIGNIFICANT RESULTS:

As SKYLAB imagery has not been received to date, no results have been attained.

SUMMARY OUTLOOK:

Based on analyses of ERTS-1 and high altitude aircraft imagery of Indiana, plus examination of a press release of a SKYLAB image of western Kentucky and eastern Illinois, the investigators believe that high resolution-synoptic SKYLAB data will provide an important

intermediate step between interprepation of ERTS-1 and high altitude aircraft imagery. Funding limitations appear to be the only reason why the number of significant SKYLAB state products, prepared in the study, will be limited.

TRAVEL SUMMARY AND PLANS

A field trip to the Indiana area is planned for the week of August 13, 1973 to gather data pertinent both to ERTS-1 and SKYLAB investigations.

Sincerely yours,

Frank J. Wobber

Frank J. Wobber
Director
Geosciences and Environmental
Applications Division

FJW/lal