A STUDY OF THE APPLICATION OF SKYLAB EREP DATA TO AGRICULTURE IN THE MISSISSIPPI DELTA ALLUVIAL PLAINS REGION

EREP Investigation No. 399

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Quarterly Report for the Period

April 23, 1973 - July 23, 1973

PREFACE

The object of this investigation is to explore the possible uses of Skylab EREP data in making agriculturally oriented decisions. The area of concern for this study is in the Mississippi Delta region, near Stoneville, Mississippi. Skylab MSS data will be analyzed through computerized pattern recognition programs by ERL at NASA/MTF. This derived information will then be formatted in a style to be agreed upon as being the clearest presentation of the most useful data, probably a color coded map and corresponding statistics.

MSU researchers will then identify possible low and intermediate level users and acquaint them with the Skylab data product. Through interviews it will be determined what are the possible uses of this data, what particular information is most useful to them, what format would be optimum for presentation of this information, and what changes (i.e. additional information) could make the data of more value to them. Using this information, an evaluation of Skylab EREP data's usefulness in making agricultural decisions will be made.

INTRODUCTION

This is the first quarterly report for this project as required by NASA Contract NAS9-13363. It covers the period beginning with the contracting date, April 23, 1973, and ending with July 23, 1973.

During this period, planning activity for the ground truth program has been performed. Data flow and communication between ERL-NASA/MTF, NASA-JSC and MSU have been exercised. Ground truth data was not gathered in the area of the EREP pass over northwest Mississippi to date. After the imagery is further examined, some ground truth plots may be established in the area of coverage of the EREP pass.

STATUS

Data on agricultural test plots is currently being taken with each ERTS-1 pass. Our plan was to use the same plots to obtain the ground truth necessary to process Skylab MSS data. However, in that Skylab was some 60 nm west of its intended orbits, these fields were not covered by EREP. If the orbit is shifted to original plan, the test fields already established and instrumented will be used to report the studies on the Skylab EREP data. Otherwise, other field locations will be established.

Crops were late and ground cover probably was insufficient to afford suitable classification.

RECOMMENDATIONS

Plans for future work are dependent on the orbital location with respect to the planned test site.

Continued liaison with Dr. A. T. Joyce and Dr. R. H. Griffin at NASA-ERL-MTF will provide for suitable ground truth information for use in the study.

EXPECTED ACCOMPLISHMENTS

When data from the Skylab EREP package is available it will be analyzed to determine its utility in the study area. The channels of data flow and communication between ERL and MSU will be kept open and active for the EREP Program as well as through other cooperative efforts in the ERTS Program.

OUTLOOK

The outlook for the project is good, subject to the report of data. The first land use classification from ERTS-1 data using spectral signature analysis by NASA-ERL-MTF is very promising, and the increased resolution afforded by Skylab's lower orbit should add significantly to the usefulness of this type of information.