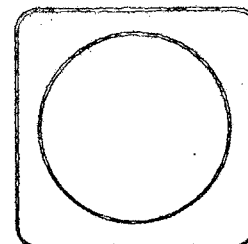


# EARTH SATELLITE CORPORATION

(EarthSat)



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March 2, 1973

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CR-130773

National Aeronautics and Space Administration  
Goddard Space Flight Center  
Greenbelt, Maryland 20771

Attention: Distribution

RE: Type I Progress Report - New Jersey Coastal Mapping: NAS5-21765

Gentlemen:

The New Jersey Department of Environmental Protection and Earth Satellite Corporation are pleased to submit a Type I Progress Report for the two-month period ending February 28, 1973.

- A. TITLE: Application of ERTS-1 Data to the Protection and Management of New Jersey's Coastal Environment (SR #304).
- B. PRINCIPAL INVESTIGATOR: Mr. Roland S. Yunghans, New Jersey Department of Environmental Protection
- C. CO-PRINCIPAL INVESTIGATORS: Mr. Edward B. Feinberg, New Jersey Department of Environmental Protection  
Dr. Frank J. Wobber, Earth Satellite Corporation
- D. CO-INVESTIGATOR: Mr. Robert L. Mairs, Earth Satellite Corporation
- E. CONTRIBUTORS: Mr. Donald Garofalo, Earth Satellite Corporation  
Mr. David A. Thibault, Earth Satellite Corporation  
Mr. Robert T. Macomber, Earth Satellite Corporation

(E73-10330) APPLICATION OF ERTS-1 DATA TO THE PROTECTION AND MANAGEMENT OF NEW JERSEY'S COASTAL ENVIRONMENT Progress Report, period ending 28 Feb. (Earth Satellite Corp.) 9 p HC \$3.00 CSCL 08C  
 UN73-19335  
 Unclas 00330  
 G3/13

F. OBJECTIVES OF INVESTIGATION:

- to develop useful information products from ERTS-1 monitoring of tidal and nearshore circulation dynamics.
- to apply these products to the management and protection of New Jersey's coastal zone.

G. SUMMARY OF ACCOMPLISHMENTS: The primary accomplishments during this two month period of the experiment are summarized on the following pages by phase. Accomplishments are detailed by task in the TASK STATUS REPORT (Appendix A).

PHASE I: PRE-LAUNCH PREPARATION

- a reconnaissance of the northern New Jersey Test Area from Seaside Park on the south to Sandy Hook on the north was made during the week of February 12, 1973.
- contact has been established with the National Oceanic and Atmospheric Administration group at Sandy Hook, and a northern base of operations has been set up at this site.
- schedules of offshore dumping in the New York Bight area have been obtained from the Corps of Engineers (New York District) and National Lead Company.
- a major ground truth survey is being planned for the ERTS overpass on April 7, 1973. The main survey effort will be in the north for this particular overpass. Coordination for this work has been established with NOAA, NASA MSC, NASA Wallops, University of Michigan, Adelphi University, and the U.S. Naval Oceanographic Office.

PHASE II: FIRST LOOK ANALYSIS

- Imagery having portions of the coastal zone cloud-free have been obtained for five (5) additional orbits

December 2, 3  
January 7, 8, 25

- Manual descriptive interpretation of each orbit is performed upon receipt of the data. A file of these analyses is kept and used is the continuing analysis of each imagery set received.
- An acetate overlay of ERTS MSS 7 for October 10, 1972 has been prepared delineating the upper wetlands boundary.
- An overlay has been prepared using ERTS MSS 5 delineating coastal land forms and use.
- The NJDEP Remote Sensing Facility is now operational. Analysis equipment, files, and personnel are now located on the 7th floor at the Trenton office of the NJDEP.

#### H. SIGNIFICANT RESULTS

- Photomaps, using MSS Bands 5 and 7, have been prepared delineating the coastal zone as described in the Coastal Area Facility Review Act before the State Legislature.
- An upper wetlands boundary overlay has been prepared at 1:500,000 scale.
- The movement and dispersion of wastes in the New York Bight area are being plotted with each orbit. The possible impact of these wastes on the New Jersey Shoreline is being quantified.
- A paper is being prepared for inclusion in the ERTS-1 Symposium on Significant Results, March 5-9, 1973.

I. PROBLEMS: None

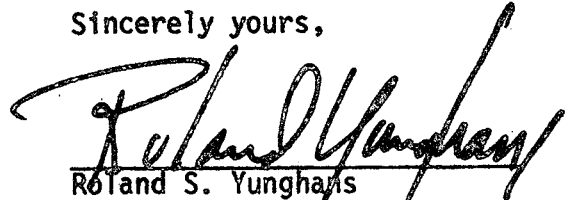
J. RECOMMENDATIONS FOR TECHNICAL CHANGES: None

K. CHANGES TO STANDING ORDER FORMS: None

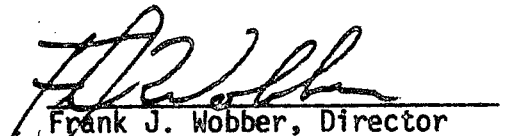
L. OVERVIEW OF INVESTIGATION:

The additional imagery received during the two-month period is undergoing intensive analysis. A folio of interim products is now being assembled for dissemination within the NJDEP. A major ground truth effort has been planned for the April 7, 1973 ERTS-1 overflight.

Sincerely yours,



Roland S. Yunghaus  
New Jersey Department of  
Environmental Protection



Frank J. Wobber, Director  
Geosciences and Environmental  
Applications Division  
Earth Satellite Corporation

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## TASK STATUS REPORT

TASK	HEADING	STATUS	COMMENTS
PHASE I			
3.1.1	Determine existence of Pre-ERTS imagery for analysis	Completed 10-1-72	Visits made to NASA MSC (Earth Resources Aircraft Data Bank) at Houston, Texas. A catalog of aircraft imagery has been prepared.
3.1.2	Assemble ERTS Data Analysis Equipment	Completed 9-1-72	NJDEP has acquired basic imagery analysis equipment at Trenton, New Jersey.
3.1.3	Analyze Pre-ERTS imagery set as a demonstration of technique	Completed 10-1-72	ERTS-1, Apollo, and aircraft imagery and their analysis were used to brief NJDEP officials.
3.1.4	Organize and conduct preliminary briefing with NJDEP	Completed 10-5-72	Briefing was held at NJDEP to demonstrate remote sensing techniques and possible products to be developed from ERTS.
3.1.5	Select candidate test sites	Completed 11-15-72	The Northern New Jersey Shore will be the primary test site with secondary test sites to be studied as NJDEP interest, or environmental problems arise.
3.1.6	Collect and organize existing ground truth data.	Completed 12-1-72	A bibliography has been prepared. Collection of pertinent ground truth will continue throughout experiment.
3.1.7	Perform reconnaissance of test area.	Completed 2-15-73	The Northert Test Area visited the week of 2-12-73. Contact was established with Sandy Hook Marine Laboratory, COE, & National Lead Co.
3.1.8	Develop final interview plan and conduct interviews.	Completed 12-10-72	Interviews with key personnel in early December have led to initial plans for information products. Subsequent briefings after initial products are prepared will be needed.

TASK	HEADING	STATUS	COMMENTS
3.1.9	Prepare ground truth collection plan	Completed 3-1-73	A multi-agency cooperative ground truth effort has been planned for the period April 6-13, 1973.
3.1.10	Instrument test sites	Pending effort sited in 3.1.9	Instrumentation will begin in late March 1973.
3.1.11	Prepare aerial survey plan	Underway	Five aircraft are scheduled to overfly test site during ground survey effort: the NASA MSC NC-130B, NASA Wallops C-54, University of Michigan C-47, and two helicopters.
3.1.12	Collect ground truth data	Upcoming	Preliminary sampling during reconnaissance survey and extensive sampling during the April 1973 effort.
3.1.13	NJDEP shall assemble equipments specified in 3.1.9 at Toms River Facility.	Upcoming	Will co-ordinate NJDEP participation with April field effort.
3.1.14	Prepare line base maps for test area.	Underway	Due to the compression of Phase I and the early receipt thereof ERTS-1 imagery, maps are being prepared using ERTS data.
3.1.15	Use simulated ERTS imagery for candidate base maps.	Underway	A folio of candidate ERTS-1 products is presently being put together.
3.1.16	Develop and conduct Preliminary Cost-Benefits Analysis	Underway	A preliminary methodology is being developed as a result of the initial interviews.

TASK	HEADING	STATUS	COMMENTS
3.1.17	Brief NJDEP on use of candidate information products	Pending	
3.1.18	Establish letter contacts with other States	Pending	
3.1.19	Prepare plan for analysis of ERTS imagery	Completed 10-1-72	Due to compression of Phase I, initial analysis plan for ERTS Imagery was established during initial briefings with NJDEP.
PHASE II			
3.2.1	First look analysis of first imagery	Completed 9-29-72	First look analysis document in first NASA progress report.
3.2.2	Analyze all ERTS imagery during Phase II	Underway	Documented analysis in progress reports
3.2.3	Analyze all ERTS imagery during Phase II by spectral band	Underway	Documented analysis in progress reports
3.2.4	Map coastal landforms and outline the wetlands	Completed 3-1-73	A coastal wetlands map at 1:500,000 has been prepared.
3.2.5	Use optical analysis equipment, & enhancement techniques in analysis of ERTS imagery	Underway	This is a continuing Task and will be underway throughout the experiment

TASK	HEADING	STATUS	COMMENTS
3.2.6	Review and finalize information distribution within NJDEP	Underway	An initial distribution network has been determined. System will be reviewed after initial products are distributed within NJDEP
3.2.7	Information products shall be distributed within NJDEP according to approved schedule	Pending Completion of 3.2.6	
3.2.8	Prepare preliminary data analysis report at completion of Phase II	Pending	
3.2.9	Prepare a revised data analysis plan for Phase III	Pending	
3.2.10	Preliminary data analysis report & revised data analysis plan sent to NASA	Pending	
3.2.11	Finalize format and content of information products package for Phase III	Pending	
PHASE III			
3.3.2	Modify data analysis procedures	Pending	



TASK	HEADING	STATUS	COMMENTS
3.3.3	Distribute on a routine basis final information products	Pending	
3.3.4	Work closely with NJDEP to best apply and distribute information products and document benefits derived thereof	Pending	
4.3	Prepare final report	Underway	Sections of the final report are being written as the experiment progresses.
4.4	Prepare a program for continuing ERTS applications within New Jersey	Pending	
4.5	Prepare coastal states briefing package	Pending	