

## **General Disclaimer**

### **One or more of the Following Statements may affect this Document**

- This document has been reproduced from the best copy furnished by the organizational source. It is being released in the interest of making available as much information as possible.
- This document may contain data, which exceeds the sheet parameters. It was furnished in this condition by the organizational source and is the best copy available.
- This document may contain tone-on-tone or color graphs, charts and/or pictures, which have been reproduced in black and white.
- This document is paginated as submitted by the original source.
- Portions of this document are not fully legible due to the historical nature of some of the material. However, it is the best reproduction available from the original submission.

"Made available under NASA sponsorship  
in the interest of early and wide dis-  
semination of Earth Resources Survey  
Program information and without liability  
for any use made thereof."

E7.6-10398

25 June 1976

CR-148183

Cnt. S-54062a

Douglas M. Pirie  
Principal Investigator  
U.S. Army Engineer District,  
San Francisco  
211 Main Street  
San Francisco, CA 94105

*etc*  
David D. Steller  
Co-Investigator  
ESCA-Tech Corporation  
2330 Cherry Industrial Circle  
Long Beach, CA 90805

Type II Progress Report for Period 1 March 1976 to 31 May 1976

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

A. Problems - None. Note change of address of Principal Investigator.

B. Accomplishments

1. Image Processing Software - Software has been developed to read and convert Landsat image tapes (CCT) to disk resident data files. A number of software packages have been developed to operate on the disk resident files. These include histogram generation, scan line display, radiometric correction (banding removal due to individual sensor characteristics), image enhancement (amplitude stretching) and tape output software. This has been applied to a CCT image of the San Francisco Bay area. Enhancement of coastal sediments was carried out by stretching the density levels of that representing San Francisco Bay and offshore waters and the surface sediment transport patterns.

The tape input software allows the user to select any combination of the 4 spectral bands to be converted and stored on disk. The tape-out software allows user specified disk files (image strips) to be merged and written to tape for a film recording device. The software presently allows for image skew removal, film annotation entry, and a calibration step wedge to be written to tape.

N76-26624

Unclass  
00396

CSCI 05E G3/43

(E76-10396) CALIFORNIA COAST NEARSHORE  
PROCESSES STUDY USING ERTS-B DATA Progress  
Report, 1 Mar. - 31 May 1976 (Army Engineer  
District, San Francisco, Calif.) 3 P HC  
\$3.50

2. Anacapa Channel - On May 27, 1976, in conjunction with a Landsat overpass, the third combined seatruth, aircraft survey was carried out. The survey started at Channel Island Harbor near Port Hueneme, California. Ocean stations were occupied at one nautical mile intervals out to Anacapa Island. At each station, the following information was collected: transmissometer readings, secchi disk reading, water samples (bucket and filtered 100 ml samples) and current. The transmissometer readings were collected on an X-Y recorder for later correlation with the suspended sediment determinations. All of the water samples were run through the University of Southern California and Scripps Institute of Oceanography sedimentology labs. Total suspended volume was determined by microfiltration. The results were utilized in calibration of the transmissometer readings. The photographs from the aircraft flight and the Landsat imagery was not yet available at the time of this report. The imagery will be interpreted for nearshore processes and compared with the other flights and years for the same area.
  
3. Humboldt Bay - All of the available Landsat images that were cloud-free over the Bay are being utilized in this study. Patterns of surface suspended sediment in and adjacent to the bay have been interpreted. Comparison to ongoing studies within the bay are being carried out. Some differences are apparent between model studies of flow patterns within the bay and the patterns visible on the Landsat imagery. Since the positioning of a new sanitation facility is being determined for the bay, the flow and flushing patterns are important. Coordination with local investigators has been made and their seatruth is being used for calibration of the indicated nearshore features.
  
4. San Pablo Bay - Correlation and interpretation of the Landsat imagery with seatruth stations has resulted in an overall surface pattern description. Dredge disposal survey information was used for calibration of the Landsat imagery. Because of the many faceted problems involved at this site, this area has received emphasis in this study. CCT enhancement of the surface water is being carried out to attempt to define deposition regions from surface patterns.

5. Oceanside Harbor - Deposition of sand next to the Oceanside Harbor breakwater continues to be a problem in keeping the navigational channels clear. Interpretation of imagery of the area has resulted in the determination of transport patterns within and adjacent to the harbor. This quick study has been accomplished with Landsat imagery backing up older NASA and commercial aircraft flight imagery of the Oceanside Harbor, CA, site.
6. California Currents and Monterey Bay Currents - These two studies are continuing with the analyses of Landsat transparencies for seasonal current trends.
7. Russian River - Photographic reprocessing is currently underway. Analysis will follow photographic steps.

C. Significant Results - None.

D. Publications - None.

E. Recommended Changes - None.

F. Funds Expended - \$57,000.

G. Data Use Tabulation

Value of data allowed	<u>\$ 9,800</u>
Value of data ordered	<u>\$ 800</u>
Value of data received	<u>\$ 4,832</u>