

"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."

E 7.3 109.63  
CR-133647

EVALUATION OF DIGITAL  
CORRECTION ~~TECHNIQUES~~ TECHNIQUES  
FOR ERTS IMAGES

BIMONTHLY PROGRESS REPORT

JULY - AUGUST 1973

Contract Number: NAS5-21814

Prepared for:

Goddard Space Flight Center  
Greenbelt, Maryland 20771

(E73-10963) EVALUATION OF DIGITAL  
CORRECTION TECHNIQUES FOR ERTS IMAGES  
Bimonthly Progress Report, Jul. - Aug.  
1973 (TRW Systems Group) 4 p HC \$3.00

N73-30305

CSSL 05B G3/13

Unclas  
00963

Original photography may be purchased from  
EROS Data Center  
10th and Dakota Avenue  
Sioux Falls, SD 57198

**TRW**  
SYSTEMS GROUP

NASA Contract No. NAS5-21814, Progress Report

July - August 1973

1.0 TITLE: Evaluation of Digital Correction Techniques for ERTS Images  
Principal Investigator Identification Number: P520

2.0 PROGRESS DURING REPORTING PERIOD

2.1 Processed Images

Scene 1062-15190-4 was processed during this reporting period. Figure 1 shows a detail taken from this scene, centered around the City of Baltimore and its harbor. The upper left image was produced by means of an Optronics filmwriter from reformatted bulk CCT data. Also shown in the figure are images produced by the filmwriter from processed CCT data for three interpolation methods: nearest neighbor (upper right); cubic convolution (lower left); and bilinear interpolation (lower right).

Note the many one pixel image discontinuities characteristic of nearest neighbor interpolation, particularly evident for the road intersection in the upper left corner of the processed image. Bilinear interpolation, on the other hand, eliminates these discontinuities, at the expense of image resolution. Finally, the image processed by the cubic convolution interpolation process shows none of the nearest neighbor image discontinuities, with no loss of resolution.

3.0 PROBLEMS

None

4.0 PUBLISHED ARTICLES

A paper has been submitted to the Symposium on Management and Utilization of Remote Sensing Data (to be held in Sioux Falls, South Dakota), for inclusion in the proceedings. The Symposium is scheduled for 29 October-1 November 1973.

NASA Contract No. NAS5-21814, Progress Report

July - August 1973

(Continued)

5.0 RECOMMENDATIONS

None

6.0 CHANGES IN PRODUCT ORDERS

None

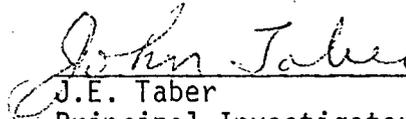
7.0 CHANGES IN PERSONNEL

None



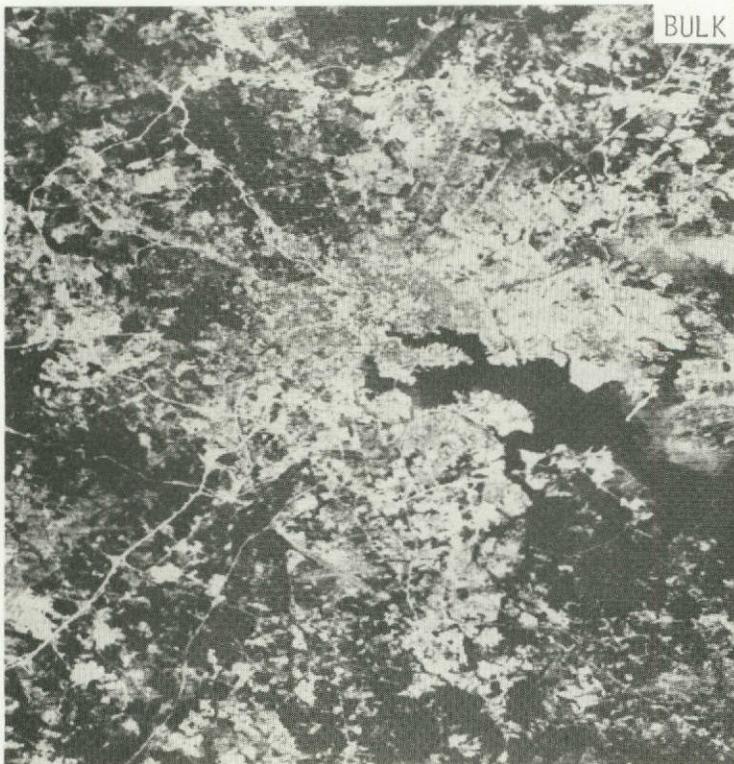
---

S. S. Rifman  
Systems Engineering Section



---

J.E. Taber  
Principal Investigator



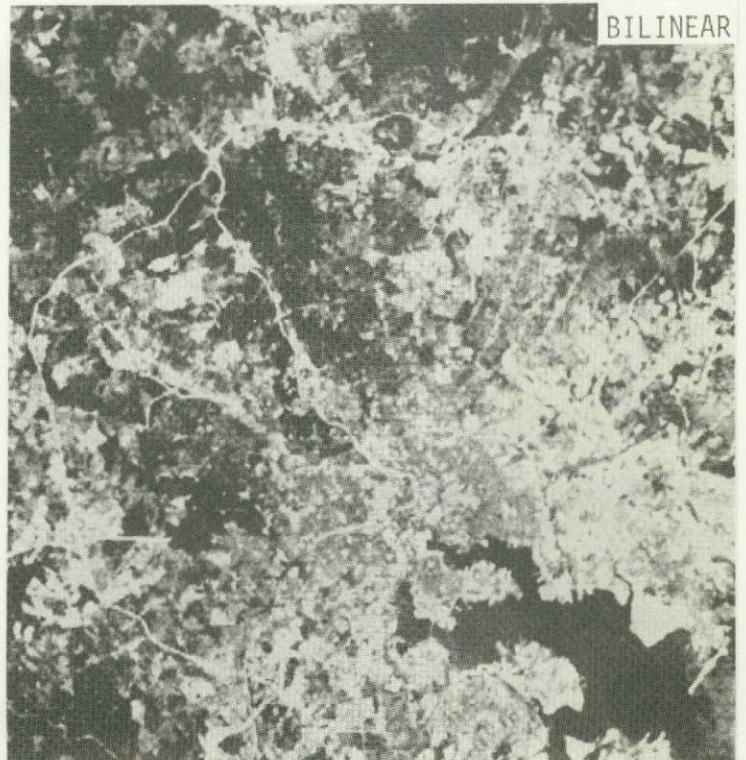
BULK



NEAREST NEIGHBOR



CUBIC CONVOLUTION



BILINEAR

Figure 1. Detail Taken From Scene 1062-15190-4. Bulk CCT data was used to produce the image in the upper left. Processed CCT data was used to produce the other images.