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DATA MANAGEMENT PROCEDURES FOR TIEPOINT REGISTRATION, PRE- AND POST-PROCESSING, AND 'ICD116'

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16. Abstract

The title of the document is "Data Management Procedures for Tiepoint Registration, Pre and Post Processing, and 'ICD116'." The contents include two main sections: Section 1 is the procedures. With each procedure description, the pertinent execs are listed and purposes defined. The second section contains an example run of each of the 32 execs with user inputs identified. Additions and corrections will be incorporated in the master copy as required.

The Data Processing Section will maintain current execs on their account; however, most of the software is uncontrolled, not acceptance tested and can be changed without notice. These procedures were written for and reside in the Data Processing Section of the Scientific Systems Department.

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DATA MANAGEMENT PROCEDURES FOR TIEPOINT REGISTRATION, PRE AND POST PROCESSING, AND 'ICD116'

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1. THE PROCEDURES

1.1 IMAGE PREPROCESSING

The Gilbert/Vicar tiepoint registration will process any type or size of image data, but preprocessing is necessary to aid the user and make the process more managable. The images must be in band sequential format. The following execs include most extracts and image preprocessing that will be required. If these are not adequate, please contact J. Gilbert for further help.

Name	Purpose	Example
CONVERT EXEC	Converts various formats from BIL to BSQ.	p. 9
JIMBOB EXEC	Outputs TM SCROUNGE tape header information.	p. 21
RPCHK EXEC	Defines primary and secondary path/row and outputs beta angle in degrees and radians.	p. 27
MEANTIME EXEC	Outputs the approximate starting line and starting sample of an area of interest from a TM SCROUNGE tape.	p. 26
SARLAS EXEC	Extracts an area of interest from a TM SCROUNGE 'P' tape.	p. 29
SARLASA EXEC	Extracts an area of interest from a TM 'A' tape.	p. 30
SAR EXEC	Extracts an area within an extract.	p. 28
SIZE EXEC	Scales the image to a different size.	p. 32

Name	Purpose	Example
DSIZE EXEC	Scales the image to a smaller size.	p. 10
LAS2IAS1	Averages every 14 lines and 14 pixels of TM SCROUNGE full frame.	p. 22

1.2 THE ICD116 PROCEDURE

If ERSYS registration is to be used, the images may be preprocessed using the appropriate execs in Section 1.1. ERSYS registration is more accurate than the tiepoint registration method, but is less flexible and requires more knowledge about the data. Input images should be BSQ and no larger than 1144 lines and 1144 pixels.

Name	Purpose	Example
ICD116D EXEC	Prepares data for interface tape to registration using TM image data.	p. 16
ICD116M EXEC	Prepares data for interface tape to registration using the EROS formatted band sequential data.	p. 18
ICD116T EXEC	Writes the ICD116 output to tape.	p. 20
TAPSCAN EXEC	Checks for physical read errors and reports record sizes.	p. 35

1.3 THE GILBERT/VICAR TIEPOINT PROCEDURES

1.3.1

Display on the IAS, the reference image on screen 1 and the registrant on screen 2. (Please refer to IAS BASICS FOR THE NEW USER for display instruction.)

NOTE: If using MSS as reference and TM as registrant, the following exec will be useful.

Name	Purpose	Example
SETUP EXEC (CMS)	Prepares setup IASCMD with proper arguments.	p. 31
SETUP IASCMD (IAS)	Displays MSS on screen 1 and TM image on screen 2.	p. 31

1.3.2

Choose and list tiepoint coordinates. This step requires patience and accuracy because the output registered image will be only as good as your tie-points. The number of tiepoints depends on the particular registration program being used.

1.3.2.1

Using cursor form 0, place the cursor on a point in the reference; read and record the virtual image coordinates. (Please refer to IAS BASICS FOR THE NEW USER for cursor instruction.)

1.3.2.2

Now, place the cursor on the same point on the registrant; read and record the virtual image coordinates.

1.3.3

Execute the TIEPOINT EXEC - make sure all entries are correct; one mistake will destroy accuracy.

Name	Purpose	Example
TIEPOINT EXEC	Converts IAS coordinates to coordinates used by the tiepoint programs.	p. 36

1.3.4

Execute the appropriate tiepoint program.

Name	Purpose	Example
TIEREG4 FXEC	'exact fit' - requires very accurate tiepoints.	p. 37
TIEREG5 EXEC	'least squares fit' - averages errors globally.	p. 38
TIEREG5B EXEC	For TM images larger than 512L x 512P.	p. 39
TRIREG EXEC	For TM simulated data-uses triangulation.	p. 41
TRIBIG EXEC	For TM simulated images larger than 512L x 512P.	p. 40
LOOPTIE EXEC	Uses TIEREG5 and will register multiple bands with one set of inputs.	p. 23

1.3.5

Check registration quality - this should be done at various times to ensure quality and accuracy of the data and to save the user time.

Name	Purpose	Example
FLICKER IASCMD	To 'blink' reference against registrant.	p. 12
IAS CURSOR	To measure one tiepoint against another.	IAS BASICS FOR THE NEW USER
IAS DISPLAY	To compare different images and band-to-band registration.	

1.4 IMAGE POST-PROCESSING

The following steps are used by data management to ensure user uniformity and versatility. Registration output images will be written to tape in BIL format with a header and gains and biases applied. This output tape will be FR80 and RT&E data base compatible. These execs should be completed in order.

Name	Purpose	Example
URITE2 EXEC	Converts the images to BIL format.	p. 42
EXPAND2 EXEC	Adds a header and gains and biases.	p. 11
WRTAPE EXEC	Writes the above to tape.	p. 45
TAPCHK EXEC	Outputs selective parts of the tape for checking the accuracy and validity of tape.	p. 33

At this point, the entire tape should be converted and checked on the IAS to make sure image data on the tape is correct. The following exec is helpful for converting an entire tape to IAS format.

Name	Purpose	Example
TAPCON	Converts 1 or more files from tape to IAS format.	p. 34

2. DOCUMENTED 'EXECS' USED IN THE PROCEDURES
(in alphabetical order)

The user of the following 'execs' is assumed to be familiar with CMS and the IAS, and is using the SCREEN account. The documentation provided is an example of the 'EXEC' run with arrows indicating user response. These execs will in turn execute the appropriate programs. The majority will require that the user be linked to Jimmy Gilbert's T and U library disks. A few require Bill Hocutt's disk, or the IAS disk. Some 'execs' reside only on the SCREEN account. Below the typed name of each exec is the exec name which will link to the appropriate disks.

CONVERT EXEC
(GRABIAS)

```
→    If tape is to be converted, mount on TAP1.
→ convert
  *** IAS Format Conversion Program ***

    Enter One Of The Following Codes
        For The Input Format

      U - Universal Format
      A - USDA Format
      L - LIVES Format
      V - VICAR Format
      E - EROS Format
      P - PFC Format
      Q - Band Sequential Format
      R - Registration Output Format
      N - None (No Formal Format)
      W - Universal Format (Production Version - Header Gain and Bias Applied)
      Z - Lives Format (Production Version - Header Gain and Bias Applied)
      S - Enter CMS Subset
      X - Exit this program
→ r
  Enter Input Medium ... Disk or Tape ( D/T )
→ d
  Enter FN FT FM for Data Set Number 1
→ i4985 81338 a
  EXECUTION BEGINS...
  *** Enter The Number Of Channels (Default=4) ***
→
  *** Enter The Starting Line Of The Image (Default=1) ***
→
  *** Enter The Starting Sample (Default=1) ***
→
  *** Enter The Number Of Lines Of The Image To Output (Default=All) ***
→
  *** Enter The Number Of Samples Per Channel To Output  (Default=All) ***
→
  Enter blank for default output filename (CHANNEL1, CHANNEL2, ....)
   Output filename for channel  1 !!
→ e31
  FILEDEF 20 DISK E31      IASIMAGE * (RECFM F  LRECL    392 BLKSIZE    392
   Output filename for channel  2 !!
→ e32
  FILEDEF 21 DISK E32      IASIMAGE * (RECFM F  LRECL    392 BLKSIZE    392
   Output filename for channel  3 !!
→ e33
  FILEDEF 22 DISK E33      IASIMAGE * (RECFM F  LRECL    392 BLKSIZE    392
   Output filename for channel  4 !!
→ e34
  FILEDEF 23 DISK E34      IASIMAGE * (RECFM F  LRECL    392 BLKSIZE    392
  *** IAS Format Conversion Program ***
    Enter One Of The Following Codes
        For The Input Format

      U - Universal Format
      A - USDA Format
      L - LIVES Format
      V - VICAR Format
      E - EROS Format
      P - PFC Format
      Q - Band Sequential Format
      R - Registration Output Format
      N - None (No Formal Format)
      W - Universal Format (Production Version - Header Gain and Bias Applied)
      Z - Lives Format (Production Version - Header Gain and Bias Applied)
      S - Enter CMS Subset
      X - Exit this program
→ x
  R; T=4.32/8.56 07:24:42
```

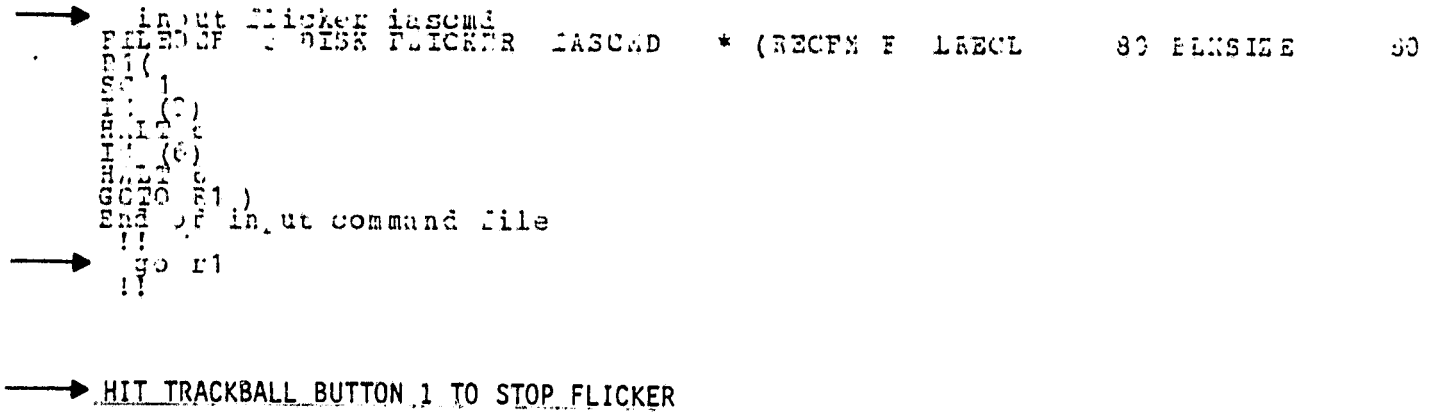
DSIZE EXEC
(GILBEAR)

```
dsize
Enter The FN, FT and FM of The File to Be Down Sized
boreal chan1 a

*** Enter The File Mode Of The Output Data Set ... ( Default = A ) ***

EXECUTION BEGINS...
*** ENTER THE NUMBER OF LINES IN THE AVERAGING (LINC) ***
2
*** ENTER THE NUMBER OF SAMPLES IN THE AVERAGING (SINC) ***
2
**BLIP**
**BLIP**
*** PROCESSING COMPLETE ***
FILENAME FILETYPE FM FORMAT LRECL      RECS      BLOCKS   DATE      TIME
BOREAL   XCHAN1   A1 V         316       316          99  6/09/83   8:20:56
R;
```

EXPAND2 EXEC
(GILBEAR)
(HOCUTT)

```
→ expand2 9656 82234u
THIS PROGRAM IS DESIGNED TO READ UP TO 100 IMAGES FROM THE INPUT
TAPE, CALCULATE BIAS AND GAIN VALUES FOR EACH FILE, AND TO COPY
THE IMAGES FROM THE INPUT TO THE OUTPUT TAPE WHILE INSERTING
THE BIAS AND GAIN VALUES IN THE HEADER OF EACH RECORD.
AN OPTION HAS BEEN ADDED TO PERMIT DISK TO DISK PROCESSING OF A
SINGLE FILE. THE INPUT FILE IS URITE OUTPUT A AND THE OUTPUT FILE
IS TM TEMP T. THESE FILE NAMES ARE SET IN THE EXEC AND MAY BE CHANGED.
THE BIAS AND GAIN VALUES ARE ALSO APPLIED TO ALL PIXEL VALUES.
          INDICATE THE SIZE OF THE IMAGES ON THE INPUT TAPE.
                1:  196  X  117  X  7
                2:  366  X  308  X  7
                3:  196  X  117  X  4
                4:  497  X  426  X  3
                5:  497  X  426  X  4
                6:  366  X  308  X  4
                7:  512  X  560  X  4
                8:  392  X  324  X  4
                9:  392  X  324  X  3
               10:  196  X  162  X  3
               11:  392  X  351  X  7
               12:  392  X  324  X  7
               13:  392  X  324  X  6
→  12
FILEDEF 10 DISK 9658 82234U  A ( BLOCK 3060 RECFM U PERM
FILEDEF 8 DISK TM9658 82234U A ( BLOCK 3060 RECFM U PERM
FILEDEF 6 DISK EXPAND OUT A ( LRECL 132 BLKSIZE 132 RECFM F PERM
EXEC CLRSCRN
LOAD GBL12 EXPAND2 BSCAL1 TCDAY
START
EXECUTION BEGINS...
*** ENTER A 1 FOR DISK INPUT OR A 2 FOR TAPE INPUT***
→  1
                PROCESSING FILE      1
                  SUBROUTINE BSREAD
                  SUBROUTINE TAPERF
          COPYING FILE NO      1
  ENTER JOB ID (TASK TITLE)
       --30 CHAR MAX--
→  tm scroungeunregistered
   ENTER RUN ID (FILE TITLE)
        --14 CHAR MAX--
→  chan 6 missreg
-------------------------------------------------------------------------
                                EXTRACTION COMPLETE
-------------------------------------------------------------------------
PRINT EXPAND OUT A
R;
```

FLICKER IASCMD
(GRABIAS)



GILBEAR EXEC


```
GILBEAR
GETDISK TEMP MAXIMUM CLEAR B
DMKLNK105E TEMP 151 NOT LINKED; R/W BY PR001
DMKLNK105E TEMP 152 NOT LINKED; R/W BY JSC1645
DMKLNK105E TEMP 153 NOT LINKED; R/W BY SRSG10
TEMP     154 HAS BEEN ATTACHED AS 192.  (003000 KILOBYTES)
192 HAS BEEN ACCESSED AS B    DISK.
LINK GILBEAR 191 499 RR
DASD 499 LINKED R/O; R/W BY GILBEAR; R/O BY 003 USERS
LINK GILBEAR 500 500 RR
DASD 500 LINKED R/O; R/W BY GILBEAR; R/O BY 003 USERS
ACC 499 T
T  (499)  R/O
ACC 500 U
U  (500)  R/O
R:
```

GRABIAS EXEC

```
  grabias
IAS program disk attached as 'Q' disk.
  Send MAIL to IASMAINT with comments, suggestions, and problems
TAPE 380 ATTACHED
    DEVICE 380       ATTACHED AS REQUESTED
        dealing with the Image Analysis Station.
  Enter   'HELP IAS NEWS'   for latest IAS information.
R;
```

HOCUTT EXEC

```
HOCUTT
CP LINK JSC716 191 291 RR PASS= UGT
DASD 291 LINKED R/O; R/W BY JSC716
ACC 291 M
M (291) R/O
R:
```

ICD116D EXEC
(GILBEAR)

The information needed for this exec can be obtained from the JIMBOB EXEC, SARLAS EXEC, RPCHK EXEC, Jess Mansfield and Jim Boatright.

```
icd116d
*** ENTER THE NUMBER OF CHANNELS TO FORMAT INTO ICD116 FORMAT ***
7
*** ENTER THE FILE MODE OF THE OUTPUT ***
a
*** ENTER THE FILE NAME OF THE EXTRACT  ED IMAGE DATA SET ***
tm8931
*** ENTER THE ( ALPHA  MERIC ) FILE TYPE OF THE EXTRACT  ED IMAGE **
82246ex
*** ENTER THE FILE MODE OF THE EXTRACT  ED IMAGE ***
a
GLOBAL TXTLIB FORTMOD2 CMSLIB WLBLIB FTIO
FI 5  TERM
FI 6  TERM
FI 15 TERM
FI 16 TERM
FI 20 DISK ICD116 OUTPUT1 A ( RECFM U BLOCK 360
FI 21 DISK ICD116 OUTPUT2 A ( RECFM U BLOCK 3596
FI 22 DISK ICD116 OUTPUT3 A ( RECFM U BLOCK 4048
FI 23 DISK ICD116 OUTPUT4 A ( RECFM U BLOCK 3596
FI 31 DISK TM893L 82246EX1 A ( RECFM U BLOCK 4000 PERM
FI 32 DISK TM893L 82246EX2 A ( RECFM U BLOCK 4000 PERM
FI 33 DISK TM893L 82246EX3 A ( RECFM U BLOCK 4000 PERM
FI 34 DISK TM893L 82246EX4 A ( RECFM U BLOCK 4000 PERM
FI 35 DISK TM893L 82246EX5 A ( RECFM U BLOCK 4000 PERM
FI 36 DISK TM893L 82246EX6 A ( RECFM U BLOCK 4000 PERM
FI 37 DISK TM893L 82246EX7 A ( RECFM U BLOCK 4000 PERM
FLIST TM893L 82246EX7 A ( EXEC ALL PRE 0 SUFF 0
FI 40 DISK CMS EXEC A ( RECFM F BLOCK 80
LOAD ICD116D ( CLEAR START NOMAP
EXECUTION BEGINS...
THE TIME IS  6:45:56
THE DATE IS  3/15/83
*** ENTER THE EXTRACTION STARTING LINE ***
1
*** ENTER THE EXTRACTION STARTING SAMPLE ***
3416
*** ENTER WRS PATH ***
027
*** ENTER WRS ROW ***
031
*** Enter The Line Number Of The WRS Center ***
1545.8
*** Enter The Sample Number Of The WRS Center ***
1676.8
The Beta Angle Default Is   2.889986
Do You Wish To Change This Value (Y/N) ??
y
*** Enter The Beta Angle ***
2.942609
*** ENTER THE SEGMENT NUMBER ***
893
*** ENTER SEGMENT CENTER LAT DEGREES ***
42
*** ENTER LAT MINUTES ***
23
*** ENTER LAT SECONDS ***
47
*** ENTER LAT N/S ***
```

```
n
*** ENTER THE SEGMENT CENTER LONG DEGREES ***
94
*** ENTER LONG MINUTES ***
10
*** ENTER LONG SECONDS ***
29
*** ENTER LONG E/W ***
W
*** ENTER SUN ELEVATION ANGLE ***
33
*** ENTER SUN AZIMUTH ***
151
*** ENTER PATH-ROW NOMINAL LONG DEGREES ***
94
*** ENTER LONG MINUTES ***
32
*** ENTER LONG E/W ***
W
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
*** LSSET IMAGE RECORD GENERATION COMPLETE ***
*** LSSET TRAILER RECORD GENERATION COMPLETE ***
FLIST ICD116 OUTPUT* A ( D
FILENAME FILETYPE  FM  FORMAT   RECS  BLKS    DATE      TIME
ICD116   OUTPUT1   A1  V    360     1     1   3/15/83  8.46.28
ICD116   OUTPUT2   A1  V   3596     2     8   3/15/83  8.48.03
ICD116   OUTPUT3   A1  V   1192  8008  9338   3/15/83  8.56.58
ICD116   OUTPUT4   A1  V   3596     7    25   3/15/83  8.56.59
ERASE CMS EXEC A
R;...
```

ICD116M EXEC
(GILBEAR)

This exec uses EROS formatted band sequential data and writes a band interleave ICD116. This exec needs cleanup. Please contact Jimmy Gilbert when needed.

ICD116T EXEC
(GILBEAR)

A scratch tape must be mounted on TAP1.

```
icd116t
TAPE 181 ON TAPE 4C1
*** Enter The File Mode Of The ICD116 Data Sets ***
a
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
R;
tape wtm
R;
tape wtm
R;
```

JIMBOB EXEC
(GILBEAR)

→ The first of the TM SCROUNGE 'P' tapes should be mounted.

→
```
  jimbob
REW 181
REWIND COMPLETE
GLOBAL TXTLIB CMSLIB FORTMOD2 WIBLIB FTIO
TAPE FSF 2
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 19 TAP1 ( RECFM U BLOCK 9999
LOAD JIMBOB ( CLEAR NOMAP START
EXECUTION BEGINS...
WRS DESCRIPTOR =  D027031
SCENE CENTER TIME = 82294162733080C
WRS SCENE CENTER LAT/LONG =  N N41-46/W094-29
IMAGE FORMAT CENTER LAT/LONG =  C N41-45/W094-28
SUN ANGLES = SUN EL33 A151
SCENE ID = 5-40097-16273-
OFB =  1412
ILC =  0
IRC =  0
BETA = 521E154C
R:
```

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LAS2IAS1 EXEC
(GILBEAR)

→ Tape must be positioned at the beginning of the appropriate file.

```
→ tape fsf 4
R;
→ las2ias1
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 10 TAP1 ( RECFM FB BLOCK 28672 LRECL 7168
FI 11 DISK TM IASIMAGE A ( RECFM U BLOCK 8000
TAPE FSR 1
DESBUF
LOAD LAS2IAS ( CLEAR NOMAP START
EXECUTION BEGINS...
*** THE SINC/LINC IS  14 ***
*** SENSED RECORD LENGHT IS    7168 ***
*** SENSED RECORD LENGHT IS    7168 ***
*** SENSED RECORD LENGHT IS    7168 ***
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
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**BLIP**
**BLIP**
*** Processing Complete ***
R;
```

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LOOPTIE EXEC
(GILBEAR)

```
→  LOOPTIE
DES3UF
EXEC TIEREG5
*** Enter The FN, FM And FT Of The Image To Be Regist ered ***
*** Enter The FN, FT And FM Of The Regist ered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
EXEC TIEREG5
*** Enter The FN, FM And FT Of The Image To Be Regist ered ***
*** Enter The FN, FT And FM Of The Regist ered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT  RECS  BLKS   DATE      TIME
TM0386   022482    A1  V  392   324   125   2/22/83  10.49.11
DES3UF
EXEC TIEREG5
*** Enter The FN, FM And FT Of The Image To Be Regist ered ***
*** Enter The FN, FT And FM Of The Regist ered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
```

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```
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT   RECS  BLKS    DATE      TIME
TM0856    622463   A1  V   392   324   125   2/22/83 10.54.24
EXEC TIEREG5
*** Enter The FN, FM And FT Of The Image To Be Regist  ered ***
*** Enter The FN, FT And FM Of The Regist  ered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT   RECS  BLKS    DATE      TIME
TM0856    622464   A1  V   392   324   125   2/22/83 11.00.14
DESBUF
EXEC TIEREG5
*** Enter The FN, FM And FT Of The Image To Be Regist  ered ***
*** Enter The FN, FT And FM Of The Regist  ered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT   RECS  BLKS    DATE      TIME
TM0856    622465   A1  V   392   324   125   2/22/83 11.03.27
DESBUF
EXEC TIEREG5
*** Enter The FN, FM And FT Of The Image To Be Regist  ered ***
*** Enter The FN, FT And FM Of The Regist  ered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
```

```
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*** PROCESSING COMPLETE ***
FILENAME FILETYPE   FM  FORMAT   RECS   BLKS     DATE      TIME
T10386   822406     A1  V   392   324    125   2/22/83 11.09.08
DESBUF
EXEC TIDR365
*** Enter The FN, FT And FM Of The Image To Be Registered ***
*** Enter The FN, FT And FM Of The Registered Image Output ***
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*LLIP*
*** PROCESSING COMPLETE ***
FILENAME FILETYPE   FM  FORMAT   RECS   BLKS     DATE      TIME
T10386   822407     A1  V   392   324    125   2/22/83 11.15.04
SP CONS CLOSE STOP
```

The following is an example of the exec which must be edited for each run. The arrows indicate potential changes.

```
*************************************************************
*                                                           *
* THIS EXEC TIEPOINT REGISTERS TM SCRCUNGE DATA--ALL BANDS. *
* INPUT EACH TIME, BEFORE RUNNING, THE FILENAME, FILETYPE, DATE *
* OF ACQUISITION, AND THE NUMBER OF BANDS TO BE REGISTERED. *
*                                                           *
*************************************************************

SPOOL CONS COPY START NOH CLASS E
&BAG = 1
&LOOP
&FNI = &CONCAT 82214EX &BAG
&FNO = &CONCAT 82214 &BAG
DESBUF
&STACK LIFO 392
&STACK LIFO 324
&STACK LIFO TM392A TIEPTS A
&STACK LIFO TM0392 &FNO A
&STACK LIFO TM892 &FNI A
EXEC TIEREG5
&IF &RETCODE NE 0 &GOTO -ERR
&BAG = &BAG + 1
&IF &BAG LE 4 &GOTO -LOOP
-ERR
SP CONS CLOSE STOP
EXEC RESET
&EXIT
```

MEANTIME EXEC
(GILBEAR)

```
meantime
EXECUTION BEGINS...
*** Enter The Scene Center Latitude (Degrees) ***
 41
*** Enter The Scene Center Latitude (Minutes) ***
 45

*** Enter The Scene Center Longitude (Degrees) ***
 94
*** Enter The Scene Center Longitude (Minutes) ***
 28

*** Enter Latitude Direction ... 0 = North, 1 = South  ***
 0
*** Enter Longitude Direction ... 0 = East, 1 = West ***
 1
Scene Center Latitude IS  41.749969
Scene Center Longitude Is  -94.466644
??? Are These Values Correct ... (0 = Yes, 1 = No) ???
 0

*** Enter The Number Of Lines To Extract ***
 512
*** Enter The Number Of Samples To Extract ***
 512

*** Enter The Extraction Center Latitude (Degrees) ***
 42
*** Enter The Extraction Center Latitude (Minutes) ***
 24

*** Enter The Extraction Center Longitude (Degrees) ***
 94
*** Enter The Extraction Center Longitude (Minutes) ***
 10

*** Computed Starting Line Is       56 ***
*** Computed Starting Sample Is   3602 ***
*** Enter The Number Of Lines To Extract ***
```

ORIGINAL PAGE IS
OF POOR QUALITY

RPCHK EXEC

```
→ rpchk
JSC735    191 HAS BEEN ATTACHED AS 243.
G (243) R/O
243 HAS BEEN ACCESSED AS G    DISK.
EXECUTION BEGINS...
$ENTER LAT AND LON TO CONVERT IN DEGREES MINUTES SEC (999 DEG TO EXIT
  LAT = DDDD MM SS
→ 0036 03 00
  LON = DDDD MM SS
→ -090 37 00
       36.05     -90.62

INPUT LATITUDE =       36.05  INPUT LONGITUDE=      -90.62
LAT AND LON IN RADIANS =  0.62919104 -1.58155823
$ENTER NUMBER OF LINES & PIXELS
  XXXXX XXXXX
→ 05000 05000
     5000      5000
AOI SIZE  LINES= 5000    PIXELS= 5000

 DAY               PATH  ROW
   PRIMARY         23    35
   SECONDARY       24    35
 NIGHT             PATH  ROW
   PRIMARY        121   209
   SECONDARY      120   209

DAY               PATH  ROW
  PRIMARY         23    35
  SECONDARY       24    35
NIGHT             PATH  ROW
  PRIMARY        121   209
  SECONDARY      120   209

SCENE CENTERS             LATITUDE              LONGITUDE
                      DEG   MIN   SEC      DEG   MIN   SEC
  PRIMARY DAY          36     3     0      -90     7     0
  SECONDARY DAY        36     3     0      -91    40     0
  PRIMARY NIGHT        36     3     0      -90    50     0
  SECONDARY NIGHT      36     3     0      -89    18     0
SCENE ANGLES DEGREES        ORIENTATION                    DRIFT
  PRIMARY DAY               10.1870174               3.13020844
  SECONDARY DAY             10.1870174               3.13020844
  PRIMARY NIGHT             10.1870174              -3.09020901
  SECONDARY NIGHT           10.1870174              -3.09020901

CLEARANCES                TOP   BOTTOM     LEFT    RIGHT
  PRIMARY DAY           -1175   -1425    -1851     -305
  SECONDARY DAY         -1556   -1034      561    -2717
  PRIMARY NIGHT         -1246   -1354     -746    -1410
  SECONDARY NIGHT       -1632    -968    -3127      971
$ENTER LAT AND LON TO CONVERT IN DEGREES MINUTES SEC (999 DEG TO EXIT
  LAT = DDDD MM SS
→ 999
```

SAR EXEC
(GILBEAR)

```
sar
*** Enter The FN, FT And FM Of The Input Imagery ***
tm086 822464;
*** Enter The FN, FT And FM Of The Output Image ***
tm086n 822464
EXECUTION BEGINS...

nter The Starting Line
 81

nter The Starting Sample
 49

nter The Number Of Lines
 324

nter The Number Of Samples
 392
FILENAME FILETYPE  FM  FORMAT  RECS  BLKS    DATE      TIME
TM086B   822464    A1  V   392   324   125   2/22/83   8.48.47
R;
```

SARLAS EXEC
(GILBEAR)

```
   Sarlas

     *** TM Extraction Program ***
     ***     LASLIB Tape Input  ***

*** Enter The Segment Number ***
  893
*** Enter The Acquisition Date ***
  82294
*** Enter The Tape Letter Design  ator ***
  io
*** Enter The First Tape Numeric Value ***
  8647

*** Enter The Starting Line Of The Extrac  tion ***
  56
*** Enter The Starting Sample Of The Extrac  tion ***
  3602
*** Enter The Number Of Lines To Output ***
  512
*** Enter The Number Of Samples To Output ***
  512
*** Enter The Band To Be Extract  ed, 0 For No More ***
  1
 I0002 TAPE IO8647 HAS BEEN REQUESTED ON UNIT 181     (TAPMOUNT)
 I0003 TAPE READY...     EXECUTION CONTINUING     (TAPMOUNT)
EXECUTION BEGINS...
*** Enter The Band To Be Extract  ed, 0 For No More ***
  2
EXECUTION BEGINS...
*** Enter The Band To Be Extract  ed, 0 For No More ***
  0
*** Extract  ion Run Compl  eted ***
R;
```

SARLASA EXEC
(GILBEAR)

→ Tape must be positioned at the beginning of the appropriate file.

```
→ SARLASA HURONA BAND4 A
  GLOBAL TXTLIB CMSLIB FORTMOD2 VDBLIB FTIO
  FI 5 TERM
  FI 6 TERM
  FI 15 TERM
  FI 16 TERM
  FI 10 TAP1 ( RECFM FB LRECL 6656 BLOCK 26624
  FI 11 DISK HURONA BAND4 A ( RECFM U BLOCK 6656
  LOAD FLIP ( CLEAR NOMAP START
  EXECUTION BEGINS...
  *** Enter The Starting Line ***
→ 2393
  *** Enter The Starting Sample ***
→ 3560
  *** Enter The Number Of Lines To Output ***
→ 1024
  *** Enter The Number Of Samples To Output ***
→ 1536
  **BLIP**
  **BLIP**
  **BLIP**
  **BLIP**
  *** Processing Complete ***
```

SETUP EXEC

SETUP IASCMD
(GRABIAS)

```
  setup 295 82234
R;
  ias
 Johnson Space Center
 Interactive Analysis Station (IAS)
TAPE 380 ON TAPE 380
 !!
  input setup iascmd
FILEDEF  3 DISK SETUP    IASCMD    * (RECFM F  LRECL     80 BLKSIZE     80
INIT
CURSOR FORM 0
CURSOR RED
CURSOR BLINK 0
IMAGE 0 1 2 3 4 5 6
ERASE IMAGE
SIZE 196 162
IMAGE 1
WRITE IMAGE MSS295 4
FILEDEF  4 DISK MSS295   4         * (RECFM F  LRECL     196 BLKSIZE    196
SIZE 392 324
IMAGE 2
WRITE IMAGE TM295 822344
FILEDEF  4 DISK TM295    822344    * (RECFM V  LRECL     392 BLKSIZE    392
IMAGE 1
ZOOM 2
OS OFF
PUT 1 6
IMAGE 2
ZOOM OFF
PUT 2 5
SCREEN 1
ZOOM OFF
IMAGE 5
End of input command file
```

SIZE EXEC
(GILBEAR)

```
  size
Enter The FN, FT and FM of The File to Be Resized
  08932464 landsimage a

*** Enter The Resampling Process To Be Used ***
    (N) ... Nearest Neighbor - (Default)
    (B) ... Bilinear
    (C) ... Cubic Convolution

  b
*** Enter The File Mode Of The Output Data Set ... ( Default = A ) ***
  a
EXECUTION BEGINS...
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
  351
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
  392
*** PARAMETER MENU ***

    DEBUG
    DEBUG
    MENU
    EXIT

*** ENTER KEYWORD PARAMETER ... OR RETURN ***

*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT   RECS   BLKS     DATE      TIME
08932464 NIASIMAG  A1  V    392   351    136   1/17/83 13.24.22
R;.
```

Note: NEAREST NEIGHBOR - ingerpolation to integer pixel and is the fastest and simplest method.

BI-LINEAR - interpolation to fractional pixel and uses nearest 4 pixels.

CUBIC CONVOLUTION - interpolation to fractional pixel and uses nearest 16 pixels. This method is the most pleasing to the eye.

TAPCHK EXEC
(HOCUTT)

```
If tape is used, mount on TAP1.

tapchk
IS THE INPUT DATA FROM DISK OR TAPE D/T
t
Q 181
TAPE 181 ON TAPE 4C3
FILEDEF 20 TAP1 ( BLOCK 3060 RECFM U PERM
FILEDEF 10 DISK TAPCHK OUT A ( LRECL 80 BLKSIZE 80 RECFM F PERM
GLOBAL TXTLIB CMSLIB FORTMOD2 FORTRAN FTIO WDBLIB
LOAD TAPCHK
START
EXECUTION BEGINS...
*** ENTER THE TAPE NUMBER OR FILE NAME ***
frh10
R; T=0.86/2.25 12:30:22
t tapchk out

                    TAPE CHECK PROGRAM RAN ON  3/25/83

              FRH10

SEGMENT     893          DATE    8/ 2/82
          TAPE GENERATED ON   1/26/83
          BY THE EODL UNIVERSAL WRITE PROGRAM
          WITH    245 BITS PER WORD IN THE GENERATING COMPUTER
          THE DATA CONSISTS OF     4 CHANNELS
          WITH    1 RECORD FOR EACH DATA SET
          LANDSAT NUMBER  4
          ACTIVE BANDS     1    2    3    4    0    0    0    0
          EACH DATA RECORD CONTAINS   1800 BYTES
          THE TAPE LABEL IS
                "TM893 82214 REGISTERED TO TM893 82246
          TAPE NUMBER          RUN ID TM893
          START PIXEL     1      STOP PIXEL    392
            324   DATA RECORDS IN THE FILE
   TAPECHECK FINISHED
```

TAPCON EXEC
(GRABIAS)

→ Tape must be mounted on TAP1.

CONVERSION ROUTINE
TAPE NO.
START FILE
NO. OF FILES TO PROCESS

```
→TAPCON ZTIAS 6250 1 2
CP REWIND 181
DEV 181 DOES NOT EXIST
+++ R(00040) +++
TAPMOUNT 6250 TAP1 RO
  I0002 TAPE 6250 HAS BEEN REQUESTED ON UNIT 181     (TAPMCUNT)
TAPE 181 ATTACHED
  I0003 TAPE READY...     EXECUTION CONTINUING     (TAPMOUNT)
TAPE FSF 0
EXEC IASCCR ZTIAS
Enter Input Medium ... Disk or Tape ( D/T )
TAPE 181 CN TAPE 4C2
How many segments do you want to skip?
EXECUTION BEGINS...
*** SITE ID IS 7777 ***

*** ACQUISITION DATE IS 084 82 ***

*** NUMBER OF PIXELS PER LINE IS  512 ***

 CH=    1      BIAS=    32.20      SCALE=     3.70
 CH=    2      BIAS=    30.00      SCALE=     3.10
 CH=    3      BIAS=    16.30      SCALE=     3.00
 CH=    4      BIAS=    12.50      SCALE=     3.00
FILEDEF 20 DISK 77770841 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
FILEDEF 21 DISK 77770842 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
FILEDEF 22 DISK 77770843 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
FILEDEF 23 DISK 77770844 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
   7777084       4     512     512
EXEC IASCCR ZTIAS
Enter Input Medium ... Disk or Tape ( D/T )
TAPE 181 CN TAPE 4C2
How many segments do you want to skip?
EXECUTION BEGINS...
*** SITE ID IS 7777 ***

*** ACQUISITION DATE IS 192 82 ***

*** NUMBER OF PIXELS PER LINE IS  512 ***

 CH=    1      BIAS= -176.20      SCALE=    12.70
 CH=    2      BIAS=  -15.00      SCALE=     6.50
 CH=    3      BIAS= -181.70      SCALE=     5.70
 CH=    4      BIAS= -118.00      SCALE=     4.10
FILEDEF 20 DISK 77771921 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
FILEDEF 21 DISK 77771922 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
FILEDEF 22 DISK 77771923 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
FILEDEF 23 DISK 77771924 IASIMAGE * (RECFM F  LRECL     512 BLKSIZE     512
**BLIP**
**BLIP**
**BLIP**
**BLIP**
**BLIP**
   7777192       4     512     512
ALL DONE WITH THIS TAPE...
CP QUERY TIME
TIME IS 10:52:37 CST THURSDAY 06/09/83
CONNECT= 00:09:08 VIRTCPU= 000:20.59 TOTCPU= 000:47.80
R:
```

TAPSCAN EXEC
(GILBEAR)

```
Tape must be mounted on TAP1.


tapscan
  *** Record      1 ---    360 Bytes
There are     1 Records in the file
All Are of Length   360 Bytes
R;
tapscan
  *** Record      1 ---   3596 Bytes
There are     2 Records in the file
All Are of Length  3596 Bytes
R;
tapscan
  *** Record      1 ---   1192 Bytes
**BLIP**
**BLIP**
**BLIP**
**BLIP**
There are  8008 Records in the file
All Are of Length  1192 Bytes
R;
tapscan
  *** Record      1 ---   3596 Bytes
There are     7 Records in the file
All Are of Length  3596 Bytes
R:
```

TIEPOINT EXEC
(GILBEAR)

```
tiepoint
*** Enter A Unique Tile Name Identifier ***
newtie
EXECUTION BEGINS...
*** Enter The Number Of Lines In The Reference Image ***
324
*** Enter The Number Of Lines In The Registrant Image ***
512
*** Enter Reference X ***
27
*** Enter Reference Y ***
255
--- Enter Registrant X ---
94
--- Enter Registrant Y ---
286
*** Enter Reference X ***
341
*** Enter Reference Y ***
259
--- Enter Registrant X ---
403
--- Enter Registrant Y ---
290
*** Enter Reference X ***
304
*** Enter Reference Y ***
18
--- Enter Registrant X ---
371
--- Enter Registrant Y ---
49
*** Enter Reference X ***
71
*** Enter Reference Y ***
32
--- Enter Registrant X ---
138
--- Enter Registrant Y ---
63
*** Enter Reference X ***

FILENAME FILETYPE  FM  FORMAT  RECS  BLKS    DATE      TIME
NEWTIE   TIEPTS    A1  F       80     5     1  1/17/83 13.06.25
R:
```

TIEREG4 EXEC
(GILBEAR)

Four tiepoints are needed that are between the center point and the corners, but closer to the corners.

```
tiereg4
*** Enter The FN, FM And FT Of The Image To Be Regist ered ***
tm893 8229ex1 a
*** Enter The FN, FT And FM Of The Regist ered Image Output ***
tm893 reg1
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
newtie tiepts a
EXECUTION BEGINS...
*** TIEPOINT DATA PROCESSED ***
*** ENTER THE NUMBER OF LINES TO OUTPUT ***
324
*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
392
*** PROCESSING COMPLETE ***
FILENAME FILETYPE   FM  FORMAT   RECS  BLKS     DATE      TIME
TM893    REG1       A1  V   392   324   125   1/17/93 13.09.24
R:
```

ORIGINAL PAGE IS
OF POOR QUALITY

TIEREG5 EXEC
(GILBEAR)

Approximately 25 evenly distributed tiepoints are needed.

```
   tiereg5
*** Enter The FN, FM And FT Of The Image To Be Registered ***
   tm386 322460x4
*** Enter The FN, FT And FM Of The Registered Image Output ***
   tm0836 322434
*** Enter The FN, FT and FM Of The Tiepoint Data Set ***
   ms3359 tiepts
EXECUTION BEGINS...

*** TIEPOINT DATA PROCESSED ***

*** ENTER THE NUMBER OF LINES TO OUTPUT ***
   324

*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
   392
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*

*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT   RECS  BLKS   DATE     TIME
TM0836   322434    A1  V   392   324   125  2/22/83  7.32.17
R;
```

TIEREG5B EXEC
(GILBEAR)

Approximately 25 well distributed tiepoints are needed, but more may be needed according to the size.

```
  TIEREG5B
* * Enter The FN, FT And FT Of The Image To Be Registered ***
  [illegible]
*** Enter The FN, FT And FM Of The Registered Image Output ***
  [illegible]
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
  [illegible] tiepts
EXECUTION BEGINS...

*** TIEPOINT DATA PROCESSED ***

*** ENTER THE NUMBER OF LINES TO OUTPUT ***
   324

*** ENTER THE NUMBER OF SAMPLES TO OUTPUT ***
   392
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*
*BLIP*

*** PROCESSING COMPLETE ***
FILENAME FILETYPE  FM  FORMAT   RECS  BLKS    DATE      TIME
T?0836   922484    A1  V   392   324   125   2/22/83  7.32.17
R;
```

Because this registration works locally, the user must determine where and the number of corrections or tiepoints that are needed.

```
EXEC TRIBIG
*** Enter The FN, FM And FT Of The Image To Be Regist  ered ***
ns001 chan3 g
*** Enter The FN, FT And FM Of The Regist  ered Image Output ***
ns001 reg3 a
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
newtms tiepts a
EXECUTICN BEGINS...
*** Enter The Debug Level ... 0 = Ncne ***
*** Enter The Output Starting Line ***
*** Enter The Number Of Lines Tc Output ***
324
*** Enter The Number Of Samples To Output ***
392
+
+
+

NTri                118
*** TIEPOINT Data Processed ***
+
+
+
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+

*** Processing Complete ***
FILENAME FILETYPE   FM   FORMAT   RECS   BLKS     DATE      TIME
NS001    REG3       A1   V   392   324    160   5/26/83 16.54
```

TRIREG EXEC
(GILBEAR)

Because this registration works locally, the user must determine where and how many tiepoints are needed.

```
EXEC TRIREG
*** Enter The FN, FM And FT Of The Image To Be Regist  ered ***
ns001 chan3 g
*** Enter The FN, FT And FM Of The Regist  ered Image Output ***
ns001 reg3 a
*** Enter The FN, FT And FM Of The Tiepoint Data Set ***
newtms tiepts a
EXECUTICN BEGINS...
*** Enter The Debug Level ... 0 = Ncne ***
*** Enter The Output Starting Line ***
*** Enter The Number Of Lines Tc Output ***
324
*** Enter The Number Of Samples To Output ***
392
+
+
+

NTri                118
*** TIEPOINT Data Processed ***
+
+
+
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+
+
+

*** 50 Lines Processed ***
+
+
+
+

*** Processing Complete ***
FILENAME FILETYPE  FM   FORMAT   RECS   BLKS     DATE      TIME
NS001    REG3      A1   V   392   324    160    5/26/93 16.54
```

URITE2 EXEC
(GILBEAR)
(HOCUTT)

```
  urite2 9657 82234u
Enter the Band
  1
1 1 324 392 1
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 21 DISK TM9657 82234U1 A ( RECFM U BLOCK 3000 PERM
Enter the Band
  2
1 1 324 392 2
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 22 DISK TM9657 82234U2 A ( RECFM U BLOCK 3000 PERM
Enter the Band
  3
1 1 324 392 3
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 23 DISK TM9657 82234U3 A ( RECFM U BLOCK 3000 PERM
Enter the Band
  4
1 1 324 392 4
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 24 DISK TM9657 82234U4 A ( RECFM U BLOCK 3000 PERM
Enter the Band
  5
1 1 324 392 5
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 25 DISK TM9657 82234U5 A ( RECFM U BLOCK 3000 PERM
Enter the Band
  6
1 1 324 392 6
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 26 DISK TM9657 82234U6 A ( RECFM U BLOCK 3000 PERM
Enter the Band
  7
1 1 324 392 7
GLOBAL TXTLIB FORTMOD2 CMSLIB WIBLIB FTIO
FI 5 TERM
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 27 DISK TM9657 82234U7 A ( RECFM U BLOCK 3000 PERM
```

```
Enter the Band
  0
1 1 324 392 0
FI 12 DISK MSS OUTPUT A ( RECFM U BLOCK 3000 PERM
LOAD MSS1 ( CLEAR NOMAP START
EXECUTION BEGINS...
BLIP
BLIP
*** Band Interleaving Run Completed ***

     Output Data Set Contains  324 Lines Of Output
     Comprised Of 2744 Total Samples
     Made Up From  7 Input Data Sets
FI 6 TERM
FI 15 TERM
FI 16 TERM
FI 10 DISK 9657 82234U A ( RECFM U BLOCK 3260 PERM
FI 20 DISK MSS OUTPUT A ( RECFM U BLOCK 3260
LOAD UNITE2 ( CLEAR NOMAP START
EXECUTION BEGINS...
ENTER THE NUMBER OF CHANNELS
  7
ENTER THE NUMBER OF PIXELS PER LINE
  392
Enter A Title For The Image
  tm9657 unregistered
ENTER THE SEGMENT NUMBER
  9657
ENTER THE ACQUISITION DATE - MONTH
  8
ENTER THE ACQUISITION DATE - DAY
  22
ENTER THE ACQUISITION DATE - YEAR
  82
BLIP
Route The Output To The PR Or TERM ???
  term
FIL 6 TERM
LOAD HEDTRAN ( CLEAR NOMAP START
EXECUTION BEGINS...
Skip The Byte Data Printout ... Y/N
  y


COMPUTING SYSTEM ID - EODL UNIVERSAL WRITE PROGRAM
TAPE LIBRARY ID -
SENSOR ID - TM
M/D/Y :  1/12/83
TAPE SEQUENCE NUMBER -    1
MISSION NUMBER -        4
SITE ID -    9657
LINE NUMBER -    0
RUN NUMBER -    0
ORBIT NUMBER -        0
TIME OF 1ST SCAN Y/M/D/H/M/S : 82/ 8/22  0: 0: 0.      0
ACTIVE CHANNELS - 254    0    0    0    0    0    0
PROCESSING FLAG... (0=RAW) -    0
NO. CHAN -    7
NO. BITS/PIX ELEMENT -    8
BYTE LOC OF START OF VIDEO DATA WITHIN SCAN -        1
BYTE LOC OF START OF 1ST CAL -        0
NO. OF VIDEO ELEM/SCAN WITHIN 1 CHAN -     392
NO. CAL ELEM IN 1ST CAL AREA -        0
RECORD SIZE IN BYTES -    2800
NO. CHAN/RECORD -    0
NO. RECORDS/SCAN/CHAN -    0
NO. RECORDS/DATA SET -    1
LENGTH OF ANCILLARY BLOCK IN BYTES -       70
DATA ORDER INDICATOR (0=BY CHAN; 1=BY PIXEL) -    0
START PIXEL NUMBER -        1
STOP PIXEL NUMBER -      392
A0 COEFFICIENTS -
0.000000000000000000000000000000000000000000000000000000000000000000000000
0.000000000000000000000000000000000000000000000000000000000000000000000000
B0 COEFFICIENTS -
0.000000000000000000000000000000000000000000000000000000000000000000000000
0.000000000000000000000000000000000000000000000000000000000000000000000000
Z2 COEFFICIENTS -
```

```
E1 COEFFICIENTS -
0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
0000000000000000000000000000000000000000000000000000000000000000000000000000000000000000
0003020100000000000
COLOR CODE INFO... 1=R, 2=G, 3=B, 0=N/A -
 0 3 2 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
OFFSET VALUE - USED WITH GAIN -    0
GAIN VALUES -
 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
PICTURE ELEM FIELD WIDTH -    0
PIXEL REGISTRATION -    0
WORD SIZE OF THE GENERATING COMPUTER -  32
WAVELENGTH OF EACH CHANNEL -
     450      520      520      600      630      690      760      900
    1550     1750    10400    12500     2080     2350
NUMBER OF DATA SETS PER PHYSICAL RECORD -    1
BYTE ADDRESS OF START OF 2ND CAL WITHIN SCAN -       0
NO. OF CAL ELEM IN 2ND CAL AREA -       0
CAL SOURCE INDICATOR - 00
FILE SKIP FLAG -    0
NUMBER OF CHANNELS IN 1ST PHYSICAL RECORD -       7
NUMBER OF PIXELS PER SCAN LINE AFTER 1ST RECORD -     392
PIXEL SKIP FACTOR...(1=EVERY PIXEL, 2=EVERY OTHER PIXEL) -         1
SCAN SKIP FACTOR...(AS ABOVE) -         1
PDP - HI FREQ FILTER NO -    0
PDP - SPECTRAL BAND FILTERED -        00
CYBER - HI FREQ FILTER NO -    0
CYBER - SPECTRAL BAND FILTERED -        00
GENERAL ANNOTATION BYTE ASSIGNMENT FOR LACIE :

GENERAL ANNOTATION BYTE ASSIGNMENT FOR ERIPS :


GENERAL ANNOTATION BYTE ASSIGNMENT FOR CYBER :

GENERAL ANNOTATION BYTE ASSIGNMENT FOR PFC :
CH=     1      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
CH=     2      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
CH=     3      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
CH=     4      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
CH=     5      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
CH=     6      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
CH=     7      READ=     0     0     0    10   BIAS=     0.0       SCALE=     1.00
TITLE :
TM9657 UNREGISTERED
R;
```

WRTAPE EXEC
(HOCUTT)

→ A scratch tape must be mounted on TAP1.

```
→  'wrtape tm295 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM295 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
R;
→  'wrtape tm9501 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9501 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
BLIP
R;
→  'wrtape tm9653 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9653 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
BLIP
R;
→  'wrtape tm9654 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9654 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
R;
→  'wrtape tm9655 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9655 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
BLIP
→  'wrtape tm9656 82234u
R;
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9656 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
R;
→  'wrtape tm9657 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9657 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
BLIP
R;
→  'wrtape tm9658 82234u
FILEDEF OUTMOVE TAP1 ( LRECL 3060 BLOCK 3060 RECFM U PERM DEN 1600
FILEDEF INMOVE DISK TM9658 82234U ( LRECL 3060 BLOCK 3060 RECFM U PERM
MOVEFILE
BLIP
R;
→  'tape wtm
R;
```