

LARGE-SCALE TEST OF A VIDEO DIGITIZING PROCEDURE FOR GROUND-DATA
LABELING OF LANDSAT PIXELS

BY

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WASHINGTON, D.C.

1984

TOPICS

SRS CROP-ACREAGE ESTIMATION PROCEDURES

- WITHOUT LANDSAT DATA
- WITH LANDSAT DATA

DIGITIZATION REQUIREMENTS

MANUAL DIGITIZATION CHARACTERISTICS

VIDEO DIGITIZATION

- APPROACH
- EQUIPMENT
- FEASIBILITY STUDY
- LARGE-SCALE TEST

AREA FRAME SAMPLING

• AREA FRAME CONSTRUCTION

- LAND-USE STRATIFICATION

INTENSIVELY CULTIVATED,

EXTENSIVELY CULTIVATED,

RESIDENTIAL, URBAN,

RANGELAND, WATER

- DETERMINATION OF

$N_H = \text{POTENTIAL NUMBER OF AREA SAMPLE UNITS IN STRATUM H}$

• SAMPLE SELECTION

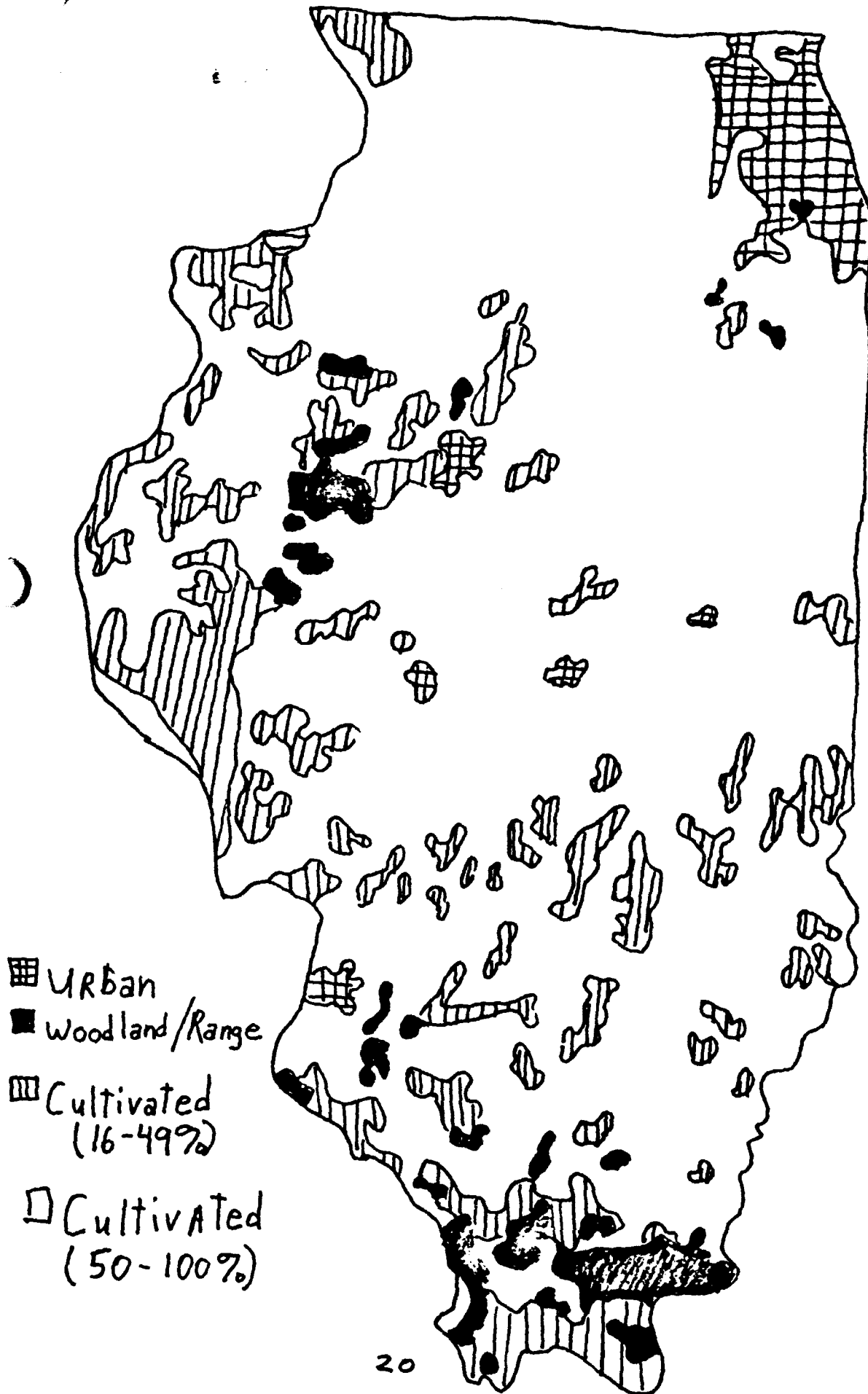
$N_H = \text{SAMPLED NUMBER OF AREA SAMPLE UNITS (SEGMENTS) IN STRATUM H}$

• ORDER SEGMENT AERIAL PHOTOGRAPHS

• INTERVIEWS WITH SEGMENT FARM OPERATORS

• KEYPUNCH QUESTIONNAIRE DATA

ILLINOIS LAND USE STRATA



KANSAS STRATA SIZES

<u>STRATUM</u>	<u>POPULATION SIZE</u>	<u>SAMPLE SIZE</u>	<u>AVERAGE SEGMENT SIZE</u>
11 } intensive	25028	170	1.00 sq. mile
12 } cultivation	21704	120	1.00 sq. mile
20 - extensive cultvtn	21286	100	1.00 sq. mile
31 } residential,	2774	12	.25 sq. mile
32 } (ag)-urban	2941	12	.10 sq. mile
33 }	247	2	.25 sq. mile
40 - rangeland	3147	15	4.00 sq. mile
50 - non-ag (forest)	294	2	1.00 sq. mile
61 } water	29	2	.50 sq. mile
62 }	231	0	1.00 sq. mile
TOTAL	<u>77,681</u>	<u>435</u>	

57

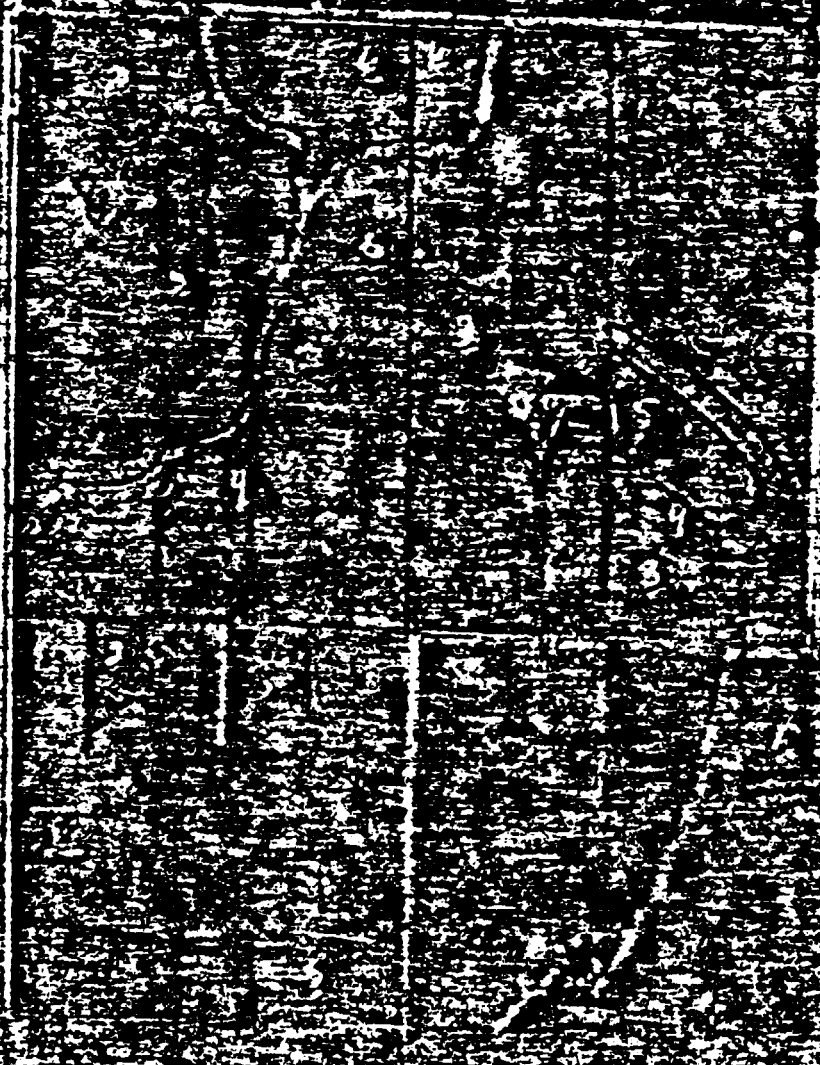
x

RY10



N

5796



SECTION A - ACREAGES OF FIELDS AND CROPS INSIDE BLUE TRACT BOUNDARY

... acres are inside this blue tract boundary drawn on the photo (or map) // Acres 56.00

... would like to ask about each field inside this blue tract boundary and its use in 1979.

FIELD NUMBER		827 1	827 2	827 3	827 4
TOTAL ACRES IN FIELD		828 45.0	828 10.0	828 1.0	828 .
CROP OR LAND USE (Specify)		CORN	weeds	ES	.
WOODS, WASTE, IDLE LAND, ROADS, DITCHES, ETC. (Less than 5.0 acres)		829 2.5	829 .	829 .	829 .
WASTE, IDLE LAND, ROADS, DITCHES, ETC. (5.0 acres or more)		830 .	830 .	830 .	830 .
WOODS, (Including grazed wood land) (5.0 acres or more)		831 .	831 10.0	831 .	831 .
OCCUPIED FARMSTEAD OR DWELLING		843 .	843 .	843 1.0	843 .
PASTURE		842 .	842 .	842 .	842 .
TWO CROPS PLANTED IN THIS FIELD for harvest this year or two uses of the same crop?		NO <input type="checkbox"/> YES _____	NO <input type="checkbox"/> YES _____	NO <input type="checkbox"/> YES _____	NO <input type="checkbox"/> YES _____
ACRES LEFT TO BE PLANTED?		844 .	844 .	844 .	844 .
ACRES LEFT TO BE PLANTED?		81- .	81- .	81- .	81- .
DURUM WHEAT - Planted and to be planted		853 .	853 .	853 .	853 .
WINTER WHEAT	Planted	840 .	840 .	840 .	840 .
	For Grain	841 .	841 .	841 .	841 .
RILEY	Planted and to be planted	835 .	835 .	835 .	835 .
	For Grain	836 .	836 .	836 .	836 .
CORN	Planted and to be planted	838 42.5	838 .	838 .	838 .
	For Grain	831 42.5	831 .	831 .	831 .
SORGHUM (Excl. crosses)	Planted and to be planted	870 .	870 .	870 .	870 .
	For Grain	871 .	871 .	871 .	871 .
OTHER USES OF GRAINS PLANTED. Use Acres abandoned, cut for hay, silage, etc.					
HAY	Cut and to be cut	ALFALFA and ALFALFA MIXTURES	853 .	853 .	853 .
	OTHER HAY	Kind			
		Acres	85- .	85- .	85- .
COTTON UPLAND	Planted and to be planted	824 .	824 .	824 .	824 .
	Abandoned	823 .	823 .	823 .	823 .
SUGAR BEETS Planted and to be planted		891 .	891 .	891 .	891 .
POTATOES Planted and to be planted		882 .	882 .	882 .	882 .
OTHER CROPS Acres planted or in use		---	---	---	---
LAND IN SUMMER FALLOW		847 .	847 .	847 .	847 .

CROP AREA ESTIMATION

WITHOUT LANDSAT DATA

1. AREA FRAME SAMPLING
2. ESTIMATES BASED ON GROUND DATA ONLY

WITH LANDSAT DATA

1. AREA FRAME SAMPLING
2. LANDSAT DATA REGISTERED SCENE-TO-MAP
3. SEGMENT LANDSAT AND GROUND DATA USED TO DEVELOP PER-PIXEL CLASSIFIER (THIS STEP REQUIRES DIGITIZED GROUND DATA.)
4. REGRESSION RELATIONSHIP DEVELOPED BETWEEN GROUND DATA AND CLASSIFICATION RESULTS
5. ENTIRE LANDSAT SCENE CLASSIFIED
6. ESTIMATES BASED ON GROUND DATA, CLASSIFICATION RESULTS, REGRESSION RELATIONSHIP

LANDSAT
image

registration
(every scene)

Map

photo

digitized
JES
segment

photo
calibration

(First project
year + new
segs)

segment
digitization

(every year)

DIGITIZATION REQUIREMENTS

PHOTO CHARACTERISTICS

24" x 24", 8"/MILE

<u>DIGITIZED DATA</u>	<u>MEAN ± S.D</u>	<u>MIN</u>	<u>MAX</u>
VERTICES/PHOTO	90 ± 47	9	225
FIELDS/PHOTO	14 ± 6	3	27

QUANTITY

- 3 WINTER WHEAT STATES : 850 PHOTOS
- 4 SUMMER PLANTED STATES : 1350 PHOTOS

TIMETABLE

	<u>START</u>	<u>FINISH</u>
WINTER WHEAT STATES	MID-JUNE	MID-AUG
SUMMER PLANTED STATES	MID-JUNE	MID-SEPT

MANUAL DIGITIZATION

EQUIPMENT

- '42" x 60" DIGITIZING TABLET CONNECTED TO MICROCOMPUTER
- 'TERMINAL PLOTTER CONNECTED TO MICROCOMPUTER
- 'MODEM

PROCEDURE

PREPARATION (ONE TIME)

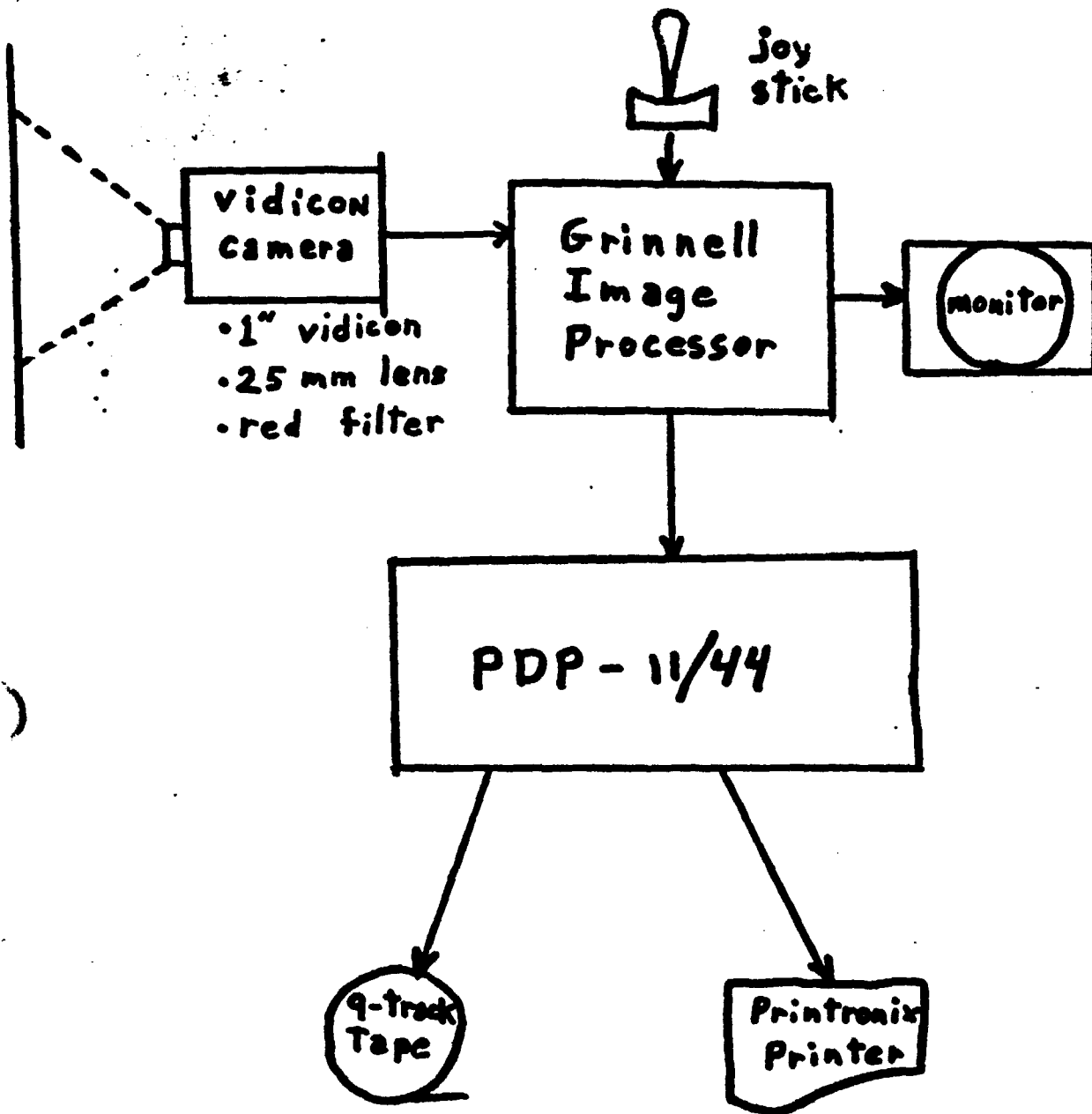
- CALIBRATION VIA TABLET DIGITIZATION OF MAP AND PHOTO CORRESPONDING POINTS

PRODUCTION (ANNUAL)

- OVERLAY WITH ACETATE AND MARK VERTICES.
- DIGITIZE VERTICES OF EACH FIELD IN CLOCKWISE DIRECTION (DIGITIZE HOLES IN COUNTER-CLOCKWISE DIRECTION).
- CHECK BY PLOTTING AT BOTH SOURCE AND MAP SCALES.

PRODUCTION RATE

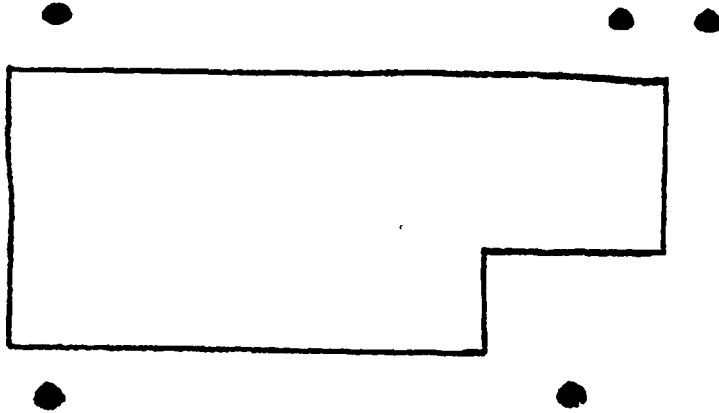
- '6 TO 8 PHOTOS/DAY



VIDEO DIGITIZATION PROCEDURE

PREPARATION (ONE TIME)

'PLACEMENT OF CALIBRATION MARKS (C.M.'s) ON PHOTOS



'PHOTO CALIBRATION VIA TABLET DIGITIZATION OF MAP AND PHOTO
CORRESPONDING POINTS

'TABLET DIGITIZATION OF C.M.'s

PRODUCTION (ANNUAL)

'OVERLAY WITH ACETATE AND PREPARE SEGMENT TRACING

- TRACT BOUNDARIES: BLUE
- ALL OTHER BOUNDARIES: BLACK
- LETTERS, NUMBERS: RED
- C.M.'s: BLACK

VIDEO DIGITIZATION PROCEDURE (CONT)

*SCANNING (INTERACTIVE)

- VIDEO IMAGING
- INTERACTIVE THRESHOLDING
- WRITE TO DISK

*CONNECTIVITY ANALYSIS AND THINNING (BATCH)

*PRINT THINNED IMAGE AND CHECK AGAINST TRACING

*FIELD LABELING

- OPERATOR ASSIGNS TRACT AND FIELD IDENTIFIERS TO DISPLAYED POLYGONS

*MASK GENERATION (BATCH)

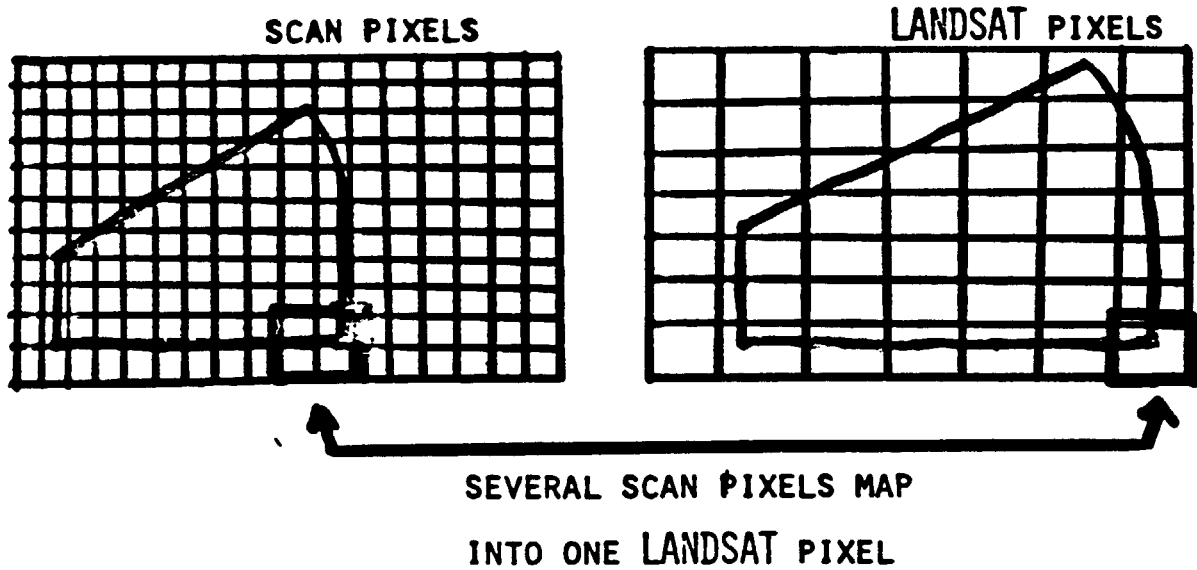
- INPUT: LABELED SCAN DATA,
C.M. CALIBRATION DATA,
SCENE-TO-MAP REGISTRATION COEFFICIENTS
- OUTPUT: RUN-LENGTH ENCODED FIELD LABELS FOR LANDSAT PIXELS
I.E. A MASK

VIDEO DIGITIZATION CONCEPTS

• PIXEL-TO-PIXEL MAPPING

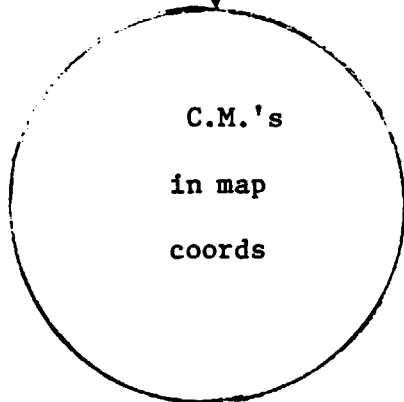
• CALIBRATION MARKS (C.M.'s)

PIXEL-TO-PIXEL MAPPING



CALIBRATION MARKS

photo calibration
and tablet
digitization of C.M.'s

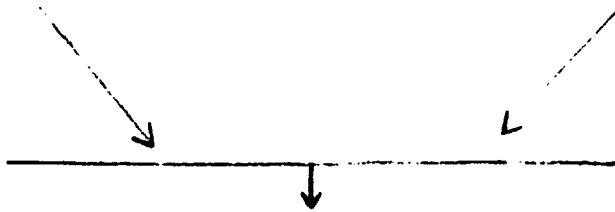


coordinate transformation
using scene-to-map
registration coefficients

processing
of scan
data

C.M.'s IN LANDSAT COORDS

C.M.'s IN SCAN COORDS



PERMITS TRANSFORMATION BETWEEN
SCAN AND LANDSAT COORDS

RESULTS

FEASIBILITY STUDY

'PROOF-OF-CONCEPT PROCESSING

- SCANNING AT UNIVERSITY OF MARYLAND
- SCAN DATA WRITTEN TO TAPE
- MASK GENERATION ON DEC-10

'5 SEGMENTS

'VIDEO DIGITIZATION LABELS FEWER LANDSAT PIXELS AS BEING PURE PIXELS THAN DOES TABLET DIGITIZATION:

$$\frac{\# \text{ VIDEO PURE PIXELS}}{\# \text{ TABLET PURE PIXELS}} = 75\% - 95\%$$

RESULTS

LARGE-SCALE TEST

• IN-HOUSE SCANNING AND PROCESSING

• 1983

-THREE STATES (CO, AR, IL) - 676 PHOTOS

-DAILY OPERATION:

8-10: LABELING; CHECK PLOTS

10-12: SCANNING

12-1 : THINNING

1-3 : SCANNING

3→ : THINNING

-AVERAGES

SCANNING: 3 MIN/PHOTO

LABELING: 6 MIN/PHOTO

COMPLETED SEGMENTS: 18 SEGMENTS/DAY

-MAJOR DIFFICULTY: FILE TRANSFER

-SUCCESSFUL TEST FOR THEMATIC MAPPER RESOLUTION

• 1984

-FIVE STATES (1983 + OK, IA) - 1335 PHOTOS

-GOALS

-AVERAGE 26 COMPLETED SEGMENTS/DAY

-SIMULTANEOUS SCAN AND LABEL

Cook

connected to
84-11??



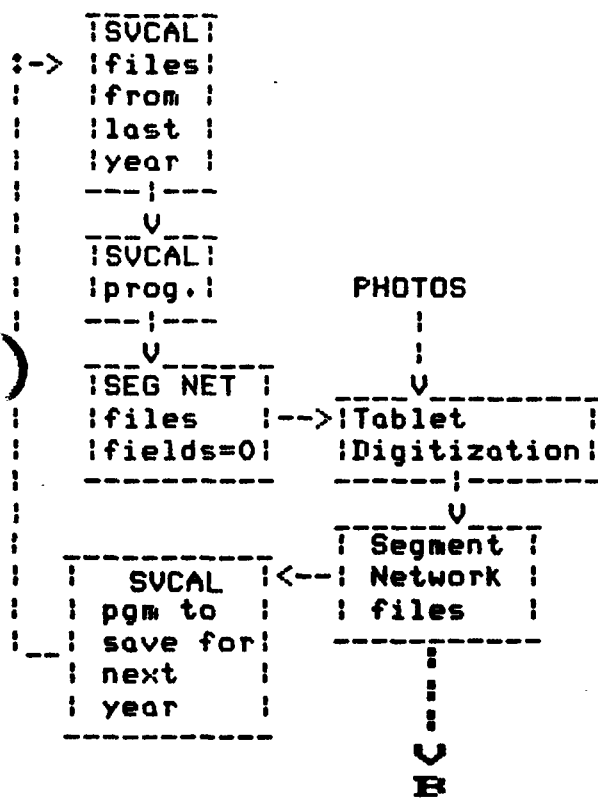
VIDGIT
O
C

Jan '84

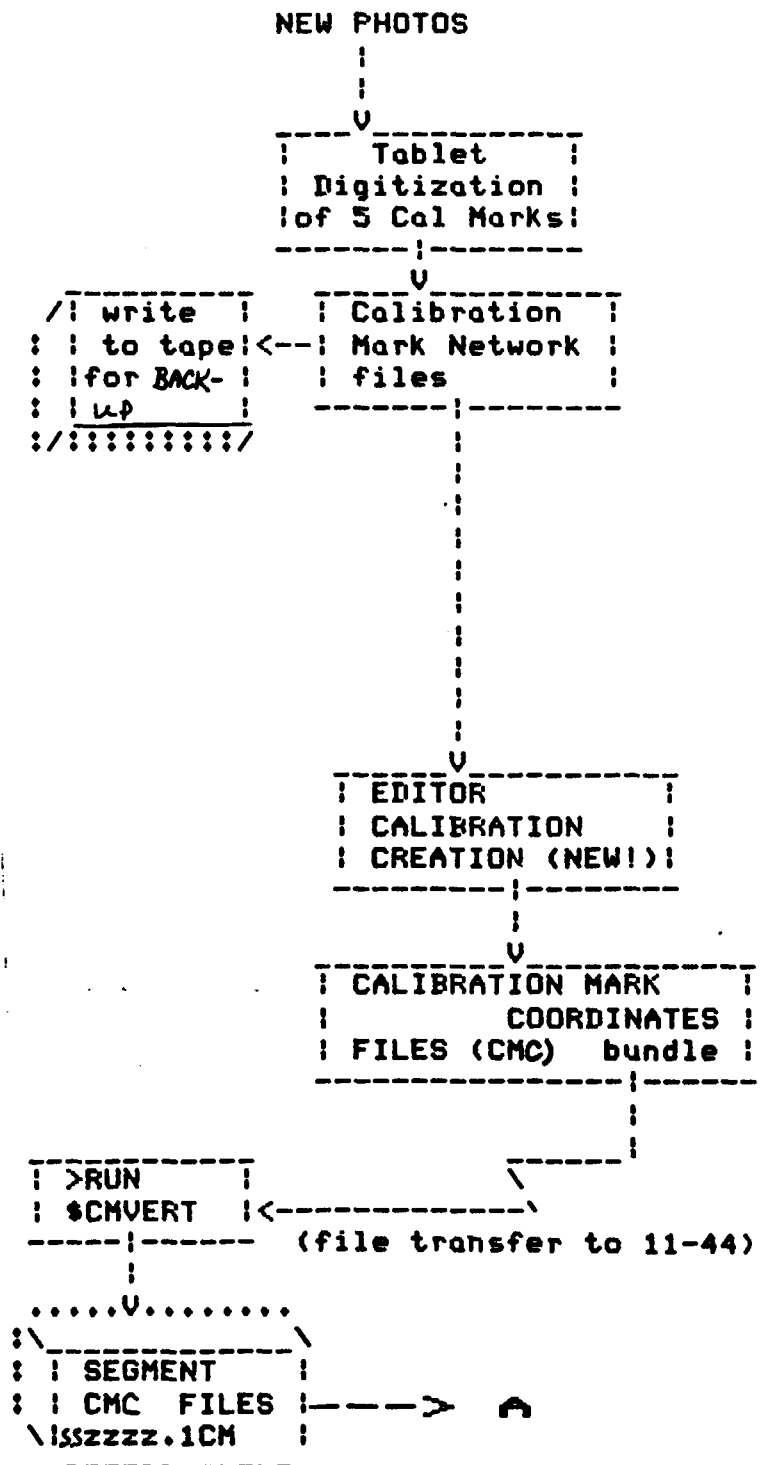
Zufloerster

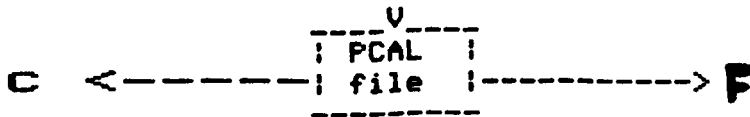
PROGRAM AND FILE FLOW COMPARISON

TABLET



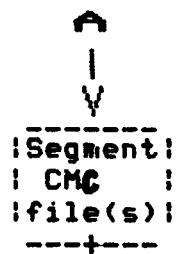
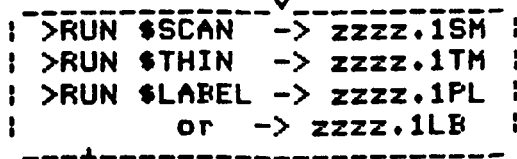
VIDEO



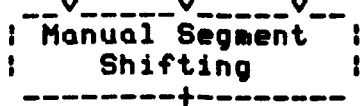
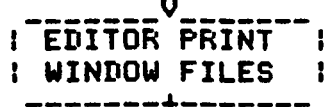
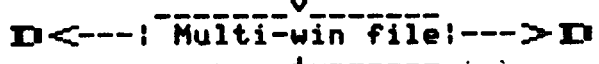
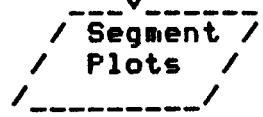
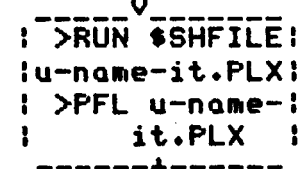
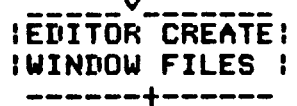
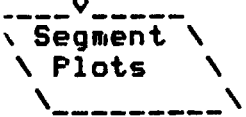
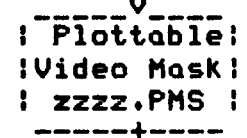
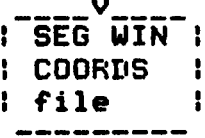
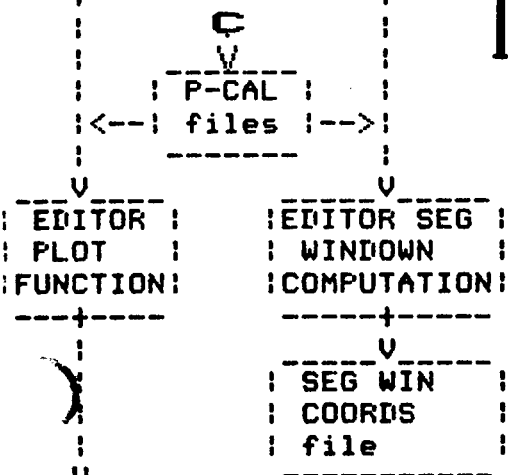
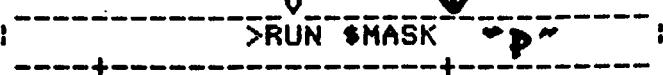


(* <***** * means
file transfer from
11-44 to BBN.)

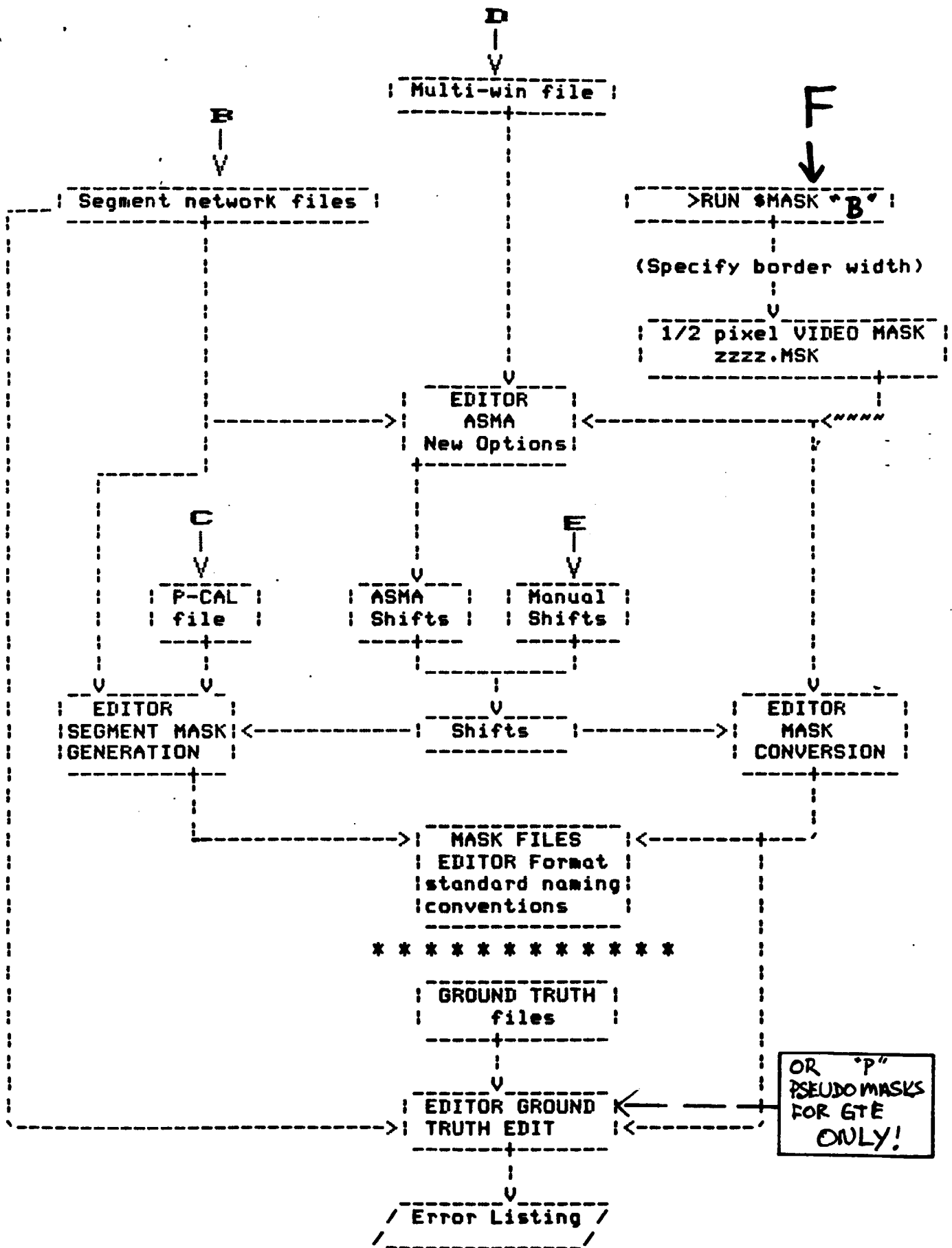
Segment Tracings
-----+-----



LANDSAT
Raw Data Tape



E



)
@<SRS>EDITOR

EDITOR VERSION 5.65, DECEMBER 26, 1983

TODAY IS Friday, January 27, 1984 15:39:43-EST

!LOG

2!NUMBER

2!IDENTIFIER

2!G011...(EGF)...

LOGGING IDENTIFIER=VD

!REGISTRATION AND DIGITIZATION FUNCTIONS

2!VIDEO DIGITIZATION FUNCTIONS

3!CALIBRATION CREATION

ENTER STATE AND YEAR JD OR CRLF ONLY FOR NON-STANDARD: IL83

SEG CAL MARK output file is TEST.SCM [New file]

USE OTHER DIRECTORIES ? N

SELECT REGION? (Y OR N)N

SEGMENT NUMBER: 181

SEGMENT 181, PART 1 OF 2
1 FIELDS, 5 EDGES, 5 VERTICES.
TOTAL SEGMENT ACREAGE: 1790.0 ACRES.

SEGMENT SCALE IS 1: 7988

(ONE INCH TO 0.13 MILES.)

SEGMENT 181, PART 2 OF 2

1 FIELDS, 5 EDGES, 5 VERTICES.

TOTAL SEGMENT ACREAGE: 1414.1 ACRES.

WARNING, HSCALE 1: 7940., VSCALE 1: 8037, DIFFER BY MORE THAN 1 PERCENT

SEGMENT SCALE IS 1: 7989

(ONE INCH TO 0.13 MILES.)

(THIS IS LAST PART OF SEGMENT FILE.)

SEGMENT NUMBER=

) ACCESS OTHER FILES? (y or n) N

181 1 2 IL82 SE -\

5

4.674905E6,730350.4,42.1943,90.21027
 4.674651E6,726724.4,42.19308,90.25423
 4.676505E6,726546.9,42.20881,90.25565
 4.676672E6,730371.3,42.21199,90.20823
 4.676675E6,730474.4,42.21199,90.20799

181 2 2 IL83 SE -\

5

4.673879E6,730336.3,42.18508,90.21064
 4.673752E6,726910.9,42.18495,90.25232
 4.675494E6,726899.1,42.20061,90.25179
 4.675544E6,730076.5,42.20013,90.21333
 4.675548E6,730181.7,42.20015,90.21205

>HEL ZUTT

Password:

RSX-11M BL32 [1,54] System RSX11M

27-JAN-84 15:51 Logged on Terminal: TT3:

>RUM \$!TRANSB

REMOTE I/O DEVICE NUMBER = 6

TALK: (ENTER !! FOR HELP)

(enter a ^Q)

BEN-----BANNER

(enter B)

Byins

BBN-TENEX 1.35.13, BBN-SYSTEM-B EXEC 1.54.2

LOGIN ZUTTERMEISTER (PASSWORD) (ACCOUNT #) 2112421

rise

ewidth 80

END FORMFEED

JOB 21 ON TTY12 27-Jan-84 16:05

PREVIOUS LOGIN: 27-Jan-84 15:36

<SR52>TO:IL.SAV;83165

NAME OF FILE TO BE TRANSFERRED:TEST.SCM

(Old version)

BYTE SIZE OF FILE:7

AIR

LOCAL FILE NAME = TEST.SCM

ANAK

TALK. (ENTER !! FOR HELP)

NAME OF FILE TO BE TRANSFERRED:

GOUT

TENEX will go down Sat 1-28-84 0755 til Sat 1-29-84 0830

due to scheduled hardware work byCPRTR

KILLED JOB 21, USER ZUTTERMEISTER, ACCT !2112421, TTY 12, AT 1/27/84 1607

USED 0:0:4 IN 0:1:49

!@

TTY -- STOP

>RUN \$CHKVRY

INPUT SEGMENT CAL-MARK FILE:TEST.SCM

CM FILE IL181.1CM OPENED AND CLOSED.

CM FILE IL181.2CM OPENED AND CLOSED).

PROCESS ANOTHER INPUT FILE? (Y OR N)-N

>TYPE IL181.1CM

181 1 2 IL83

4.674905E6,730350.4,42.1943,90.21027

4.674651E6,728724.4,42.19308,90.25423

4.676505E6,726546.9,42.20981,90.25565

4.676872E6,730371.3,42.21199,90.20923

4.676875E6,730474.4,42.21199,90.20782

>

In the event that not all Ses/Cal Network files can be found at BBN, there is a way to convert existing *.PCM files on the 11/44 to the new format. File transfer the appropriate PCAL-3 file from BBN to 11/44, make sure that the *.PCM files are on line in the appropriate directory, and execute

">RUN \$CMFIXIT"

An example follows:

```
>RUN $CMFIXIT
ENTER TWO LETTER STATE CODE-JL {IL,IA,CO,AR,OK--only are allowed}
INPUT P-CAL FILE IS----- {11/44 file name of the PCAL-3 file.}
GIMME A FILE NAME CRLF TO QUIT-xxxx.PCM {xxxx=sess num; p=part: local 11/44 name}
GIMME A FILE NAME CRLF TO QUIT-          {enter more file names if appropriate--
                                          they must be in same scene PCAL-3 area}
```

>TYPE 5144.1CM

5144 1 1
40421-16050

5
4.427967E6,304517.7,2295.6,1243.081
4.428162E6,301624.8,2302.737,1192.653
4.43135E6,301517,2248.362,1179.11
4.431211E6,304213.8,2240.975,1225.964
4.431206E6,304310.2,2240.705,1227.638
2240.1179,2303,1244

{This is the old format file with
UTM and row/col info which depended
on the particular PCAL-3 used.}

>TYPE IL5144.1CM

5144 1 1 IL83

5
4.427967E+06, 3.045177E+05, 3.998125E+01, 8.928884E+01
4.428162E+06, 3.016248E+05, 3.998233E+01, 8.932272E+01
4.431350E+06, 3.015170E+05, 4.001099E+01, 8.932504E+01
4.431211E+06, 3.042138E+05, 4.001037E+01, 8.929344E+01
4.431206E+06, 3.043102E+05, 4.001035E+01, 8.929232E+01

{This is the new
format which has
UTM and Lat/Long
both independent
of the PCAL-3 used}

FILE TRANSFER FROM BBN TO THE 11-44

>HELLO ZUTTERMEISTER
Password:

RSX-11M BL32 [1,54] System RSX11M
21-JUN-83 10:19 Logged on Terminal TT3:

Good Morning

>@LOGIN.CMD
>SET /MCR=TI:
>SET /BUF=TI:80.
>SET /ECHO=TI:
>SET /LOWER=TI:
>SET /HFILL=TI:5
>SET /DCL=TI:
>@ <EOF>
>RUN \$FTRANS
REMOTE TTY DEVICE NUMBER = 6
TALK. (ENTER !! FOR HELP)

^C
Trying

BBN-TENEX 1.35.12, BBN-SYSTEM-B EXEC 1.54.2
@LOGIN ZUTTERMEISTER (PASSWORD) (ACCOUNT #) 2112421
@raise
@width 80
@formfeed
@ JOB 20 ON TTY20 21-Jun-83 10:23
PREVIOUS LOGIN: 21-Jun-83 08:07
@<SRS2>T011.SAV;83165

NAME OF FILE TO BE TRANSFERRED:AD35G.SEG-CALMARK/COB2
[Old version]

BYTE SIZE OF FILE:7
AAA!R
LOCAL FILE NAME = AD35G.SCM
ANAWAWAW

{ FOR YOUR A= ACKNOWLEDGE; N= NOT ACKNOWLEDGE}
{ INFORMATION W= WRITE BLOCK}

TALK. (ENTER !! FOR HELP) <TRANSFER HAS ENDED FOR FIRST FILE>

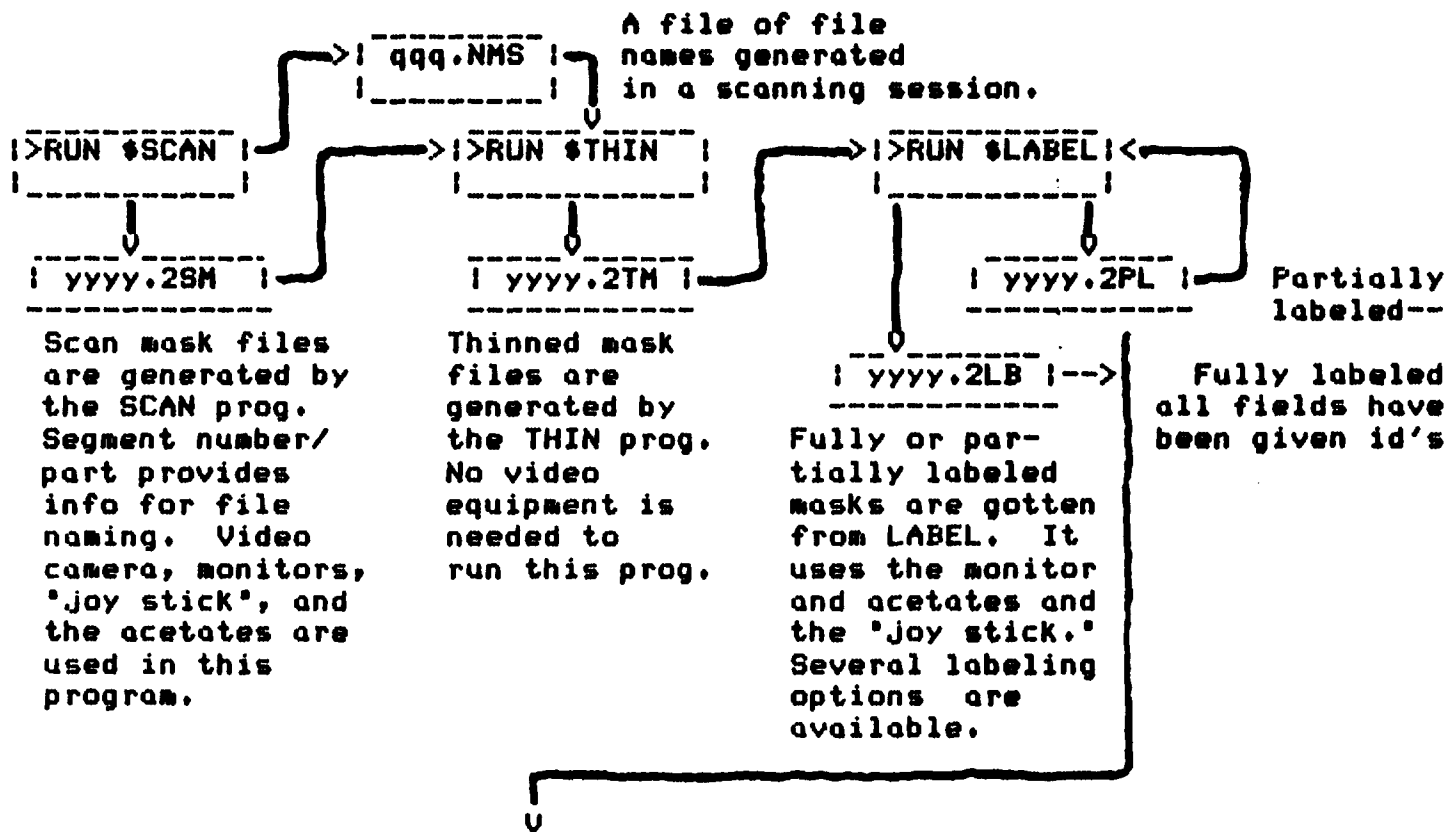
NAME OF FILE TO BE TRANSFERRED: <SPECIFY ANOTHER OF CRLF TO QUIT>

@LOGOUT <YOU NEED TO REMEMBER TO LOGOUT FROM BBN BEFORE CONTINUING>

KILLED JOB 10, USER ZUTTERMEISTER, ACCT 2112421, TTY 20, AT 6/21/83 1039
USED 0:0:6 IN 0:4:0

!Q <STOPS THE FTRANS PROGRAM AT THE 11-44>
TT3 -- STOP

we see that....



...TO BE CONTINUED...!

SCAN MASK GENERATION

>RUN \$SCAN

DO YOU WISH ME TO GO INTO PRODUCTION MODE?Y

DIGITIZE

<CRLF> TO CONTINUE OR "Q" TO STOP IGZ>

THRESHOLD

USE CURSOR 1 JOYSTICK UP=DARKER, DOWN=LIGHTER

"ENTER" AND "FUN B" TO CAPTURE IMAGE

<CRLF> TO BOX OR <"@"> TO RESCAN >@

DIGITIZE

<CRLF> TO CONTINUE OR "Q" TO STOP IGZ>

THRESHOLD

USE CURSOR 1 JOYSTICK UP=DARKER, DOWN=LIGHTER

"ENTER" AND "FUN B" TO CAPTURE IMAGE

<CRLF> TO BOX OR <"@"> TO RESCAN >

BOX

USE JOYSTICK NOW-CURSOR 1 IN LOWER LEFT AND CURSOR 2 IN UPPER RIGHT

USE "ENTER" ONLY TO DRAW BOX, "ENTER & FUN B" TO CAPTURE

SEGMENT NUMBER/PART (IF MULTI-PART EG "3121/2") =6101

THE FILE OF MASK FILE NAMES IS N897.NMS

THE OUTPUT SM (SCAN MASK) FILE IS DL1:[300,364]6101.1SM#4

DIGITIZE

<CRLF> TO CONTINUE OR "Q" TO STOP IGZ>Q

THE INPUT FILE FOR THE THINNING PGM FROM THIS SESSION OF SCANNING IS N897.NMS

THIN MASK GENERATION

>
(
RUN \$THIN
INPUT".NMS" FILE OF SCAN MASK FILE NAMES=N865.NMS
SEGMENT=6101 NO. OF ROWS=360 NO. OF COLUMNS=338
CONNECTIVITY
TEMPORARY FILE=C2757.TMP
ADJUST
17 TOTAL FIELDS FOUND: 7 BOUNDARY AND 10 NON-BOUNDARY
FINDCAL
CALIBRATION MARKS ARE:
1: X-CENTER=313.60 Y-CENTER=9.72 QUAD=UPPER RIGHT
2: X-CENTER=328.13 Y-CENTER=9.56 QUAD=UPPER RIGHT
3: X-CENTER=7.77 Y-CENTER=18.12 QUAD=UPPER LEFT
4: X-CENTER=7.78 Y-CENTER=334.46 QUAD=LOWER LEFT
5: X-CENTER=313.86 Y-CENTER=354.39 QUAD=LOWER RIGHT
THINNING
LEFT DELETE=1075
RIGHT DELETE=1854
BOTTOM DELETE=3157
TOP DELETE=3916
DELETED 10002 BOUNDARY PIXELS ON CYCLE 1
LEFT DELETE=9
RIGHT DELETE=16
BOTTOM DELETE=18
TOP DELETE=18
DELETED 61 BOUNDARY PIXELS ON CYCLE 2
LEFT DELETE=0
RIGHT DELETE=0
BOTTOM DELETE=0
TOP DELETE=0
DELETED 0 BOUNDARY PIXELS ON CYCLE 3
NO SMALL NON-BOUNDARY FIELDS DELETED
HIGHEST WORD USED IN MASK=2607
THE OUTPUT MASK FILE WILL BE 6101.1TM
ELAPSED TIME=4:50
)
)

LABEL MASK GENERATION

>
>RUN \$LABEL
MONITOR TO USE=A
SEGMENT NUMBER/PART (IF MULTI-PART EG. "3121/2") =6101
SEGMENT=6101 NO. FIELDS=9 NO. ROWS=360 NO. COLS=338THIN JDAY/TIME: 175/278

LAB>?
C=>USE A CURSOR TO SELECT FIELDS TO LABEL
L=>LABEL FIELDS AS SELECTED BY THE PROGRAM
R=>RENAME FIELDS
S=>SHADE ALL LABELLED FIELDS
T=>TEST FIELD LABELLING
U=>USER FIELD ADDITION AND DELETION
V=>VIEW A LABELLED FIELD
Q=>QUIT

LAB>S
NO FIELDS HAVE BEEN LABELLED

LAB>L
FIELD=A1
FIELD=A2
FIELD=D1
FIELD=E4
FIELD=D2
FIELD=E2
FIELD=A3
FIELD=E3
FIELD=E1

LAB>T
FIELD=A1
FIELD=A2
FIELD=D1
FIELD=E4
FIELD=D2
FIELD=E2
FIELD=A3
FIELD=E3
FIELD=E1

LAB>RE
VIEW AND RENAME FIELDS

FIELD=A3
RENAMED TO I3
FIELD=.

LAB>L
LAB>L
LAB>T
FIELD=A1 -
FIELD=A1
FIELD=A2
FIELD=D1
FIELD=E4 -2
FIELD=A2 +3
FIELD=D2 +5

NOTE USE OF

"."
"-n"
"+n"
?"

← locates field w areas have

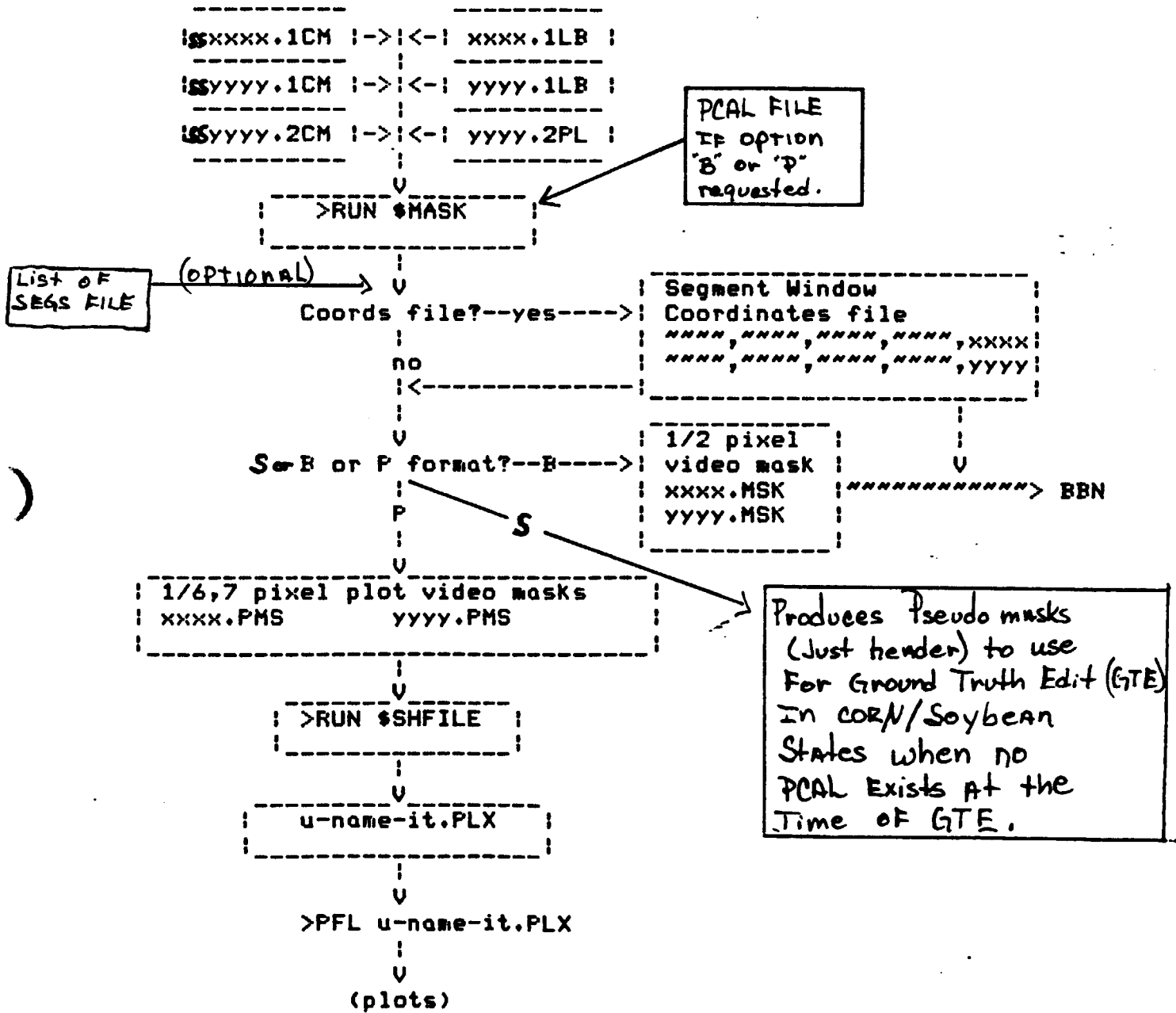
LAB>Q
THE OUTPUT MASK FILE WILL BE 6101.1LB

>

)

As the moment of truth approaches

VIDEO MASK GENERATION



The following is an example of the new (Jan '84) MASK generation program on the 11/44. If "S" mask type is requested, no PCAL file is needed nor is a coordinates file generated. Note that if "B" or "P" types are requested--the list of segs must be only segments in the scene corresponding to the PCAL file specified. Segments in multi-scene analysis districts must be kept in separate list-of-segs files up thru this point in the processing.

>RUN *MASK

ENTER MASK TYPE (B FOR BBN, P FOR PRINTER, S FOR PSEUDO): B

ENTER TWO LETTER STATE CODE-IL

INPUT P-CAL FILE IS-----{Local PCAL file name.}

OUTPUT FILE OF WINDOW COORDINATES (CRLF FOR NONE)=-----{Local file name}

BORDER IN PIXELS=20

FILE OF SEGS IN FRAME 40412-18104 (CRLF FOR NONE)=-----{Local file name}

USE OTHER DIRECTORIES? (Y OR N)Y

ENTER UP TO 5 ADDITIONAL DIRECTORIES---ONE PER LINE "Innn,nnn)". CRLF TO QUIT.

*[300,220]

*[300,374] {<-----This directory will contain all the CM files for all
* states and nothing else is to be put in this directory but CM
files.}

USING [300,374]IL181.1CM USING [300,220]181.1LB FOR MASK GENERATION.

SEGMENT=181 PART= 1 NO. ROWS=474 NO. COLS=247 NO. FIELDS=24

CALIBRATION MARKS ARE:

- 1 X=17.67 Y=21.33 FROM QUAD UPPER LEFT MAPPED TO UPPER RIGHT
- 2 X=223.40 Y=37.58 FROM QUAD UPPER RIGHT MAPPED TO LOWER RIGHT
- 3 X=227.91 Y=451.86 FROM QUAD LOWER RIGHT MAPPED TO LOWER LEFT
- 4 X=18.17 Y=9.93 FROM QUAD EXTRA MAPPED TO EXTRA

5 X=24.0 Y=10.0 FROM QUAD LOWER LEFT MAPPED TO LOWER LEFT

LANDSAT WINDOW (HALF PIXEL)=1149,3969,1224,4058

THE OUTPUT HALF PIXEL MASK FILE IS 1120.MSK

----->
USING [300,374]113071.1CM USING [300,220]3071.1LB FOR MASK GENERATION.

SEGMENT=3071 PART= 1 NO. ROWS=331 NO. COLS=288 NO. FIELDS=20

CALIBRATION MARKS ARE:

- 1 X=278.12 Y=18.34 FROM QUAD UPPER RIGHT MAPPED TO UPPER LEFT
- 2 X=10.92 Y=25.16 FROM QUAD UPPER LEFT MAPPED TO LOWER LEFT
- 3 X=280.00 Y=274.44 FROM QUAD LOWER RIGHT MAPPED TO UPPER RIGHT
- 4 X=280.61 Y=297.32 FROM QUAD EXTRA MAPPED TO EXTRA
- 5 X=13.44 Y=314.28 FROM QUAD LOWER LEFT MAPPED TO LOWER RIGHT

FINAL CALIBRATION MARK INFORMATION:

UPPER LEFT IX=278.1 IY=18.3 COL=2347.2 ROW=1819.3 UX=287125.3 UY=4601712.0

UPPER RIGHT IX=280.0 IY=274.4 COL=2376.6 ROW=1814.1 UX=288825.8 UY=4601628.0

LOWER LEFT IX=10.9 IY=25.2 COL=2353.9 ROW=1852.9 UX=287072.7 UY=4599758.0

LOWER RIGHT IX=13.4 IY=314.3 COL=2387.0 ROW=1846.8 UX=286684.6 UY=4598672.0

EXTRA IX=280.6 IY=297.3 COL=2379.2 ROW=1813.6 UX=288980.0 UY=4601620.0

WINDOW COORDS=1813,2347 : 1853,2387

TOTAL ACRES=871.60 TOTAL SCAN PIXELS=72603.55 SCALE=0.012

19 FIELDS REMAIN AFTER COMBINING FIELDS FROM AN ORIGINAL 20

4095 MASK WORDS USED

LANDSAT WINDOW=1816,2349,1850,2384

LANDSAT WINDOW (HALF PIXEL)=3631,4697,3700,4768

THE OUTPUT HALF PIXEL MASK FILE IS 3071.MSK

----->
DTYPE 16104.CRD

721,1091,780,1161,181

731,1087,794,1177,181

555,195 32,2049,1120

1700 21 1870 2404 3071

LANDSAT WINDOW=742,1111 : 760,1141

LANDSAT WINDOW (HALF PIXEL)=741,2220,2020,2002

LANDSAT WINDOW (HALF PIXEL)=741,2220,2020,2002 USING [300,220]181,2LB FOR MASK GENERATION.

SEGMENT=181 PART= 2 NO. ROWS=310 NO. COLS=496 NO. FIELDS=29

SEGMENT=181 PART= 2 NO. ROWS=310 NO. COLS=496 NO. FIELDS=29

CALIBRATION MARKS ARE:

1 X=466.61 Y=15.66 FROM QUAD EXTRA MAPPED TO EXTRA

2 X=453.18 Y=16.61 FROM QUAD UPPER RIGHT MAPPED TO UPPER RIGHT

3 X=15.24 Y=30.55 FROM QUAD UPPER LEFT MAPPED TO UPPER LEFT

4 X=483.29 Y=263.76 FROM QUAD LOWER RIGHT MAPPED TO LOWER RIGHT

5 X=11.73 Y=291.61 FROM QUAD LOWER LEFT MAPPED TO LOWER LEFT

FINAL CALIBRATION MARK INFORMATION:

UPPER LEFT IX=15.2 IY=30.5 COL=1098.7 ROW=752.7 UX=726899.1 UY=4675494.0

UPPER RIGHT IX=453.2 IY=16.6 COL=1153.8 ROW=743.3 UX=730078.5 UY=4675544.0

LOWER LEFT IX=11.7 IY=291.6 COL=1103.7 ROW=782.7 UX=726910.9 UY=4673752.0

LOWER RIGHT IX=483.3 IY=263.8 COL=1162.8 ROW=771.3 UX=730336.3 UY=4673879.0

EXTRA IX=466.6 IY=15.9 COL=1155.6 ROW=742.9 UX=730181.7 UY=4675548.0

WINDOW COORDS=742,1098 : 783,1163

TOTAL ACRES=1392.84 TOTAL SCAN PIXELS=115832.90 SCALE=0.012

25 FIELDS REMAIN AFTER COMBINING FIELDS FROM AN ORIGINAL 29

4150 MASK WORDS USED

LANDSAT WINDOW=751,1107,774,1157

LANDSAT WINDOW (HALF PIXEL)=750,2213,1548,2314

THE OUTPUT HALF PIXEL MASK FILE IS 181.MSK

LANDSAT WINDOW (HALF PIXEL)=750,2213,1548,2314 USING [300,374]1120,1LB USING [300,220]1120,1LB FOR MASK GENERATION.

SEGMENT=1120 PART= 1 NO. ROWS=395 NO. COLS=456 NO. FIELDS=45

CALIBRATION MARKS ARE:

1 X=418.15 Y=7.90 FROM QUAD UPPER RIGHT MAPPED TO UPPER RIGHT

2 X=445.71 Y=7.76 FROM QUAD EXTRA MAPPED TO EXTRA

3 X=5.08 Y=28.98 FROM QUAD UPPER LEFT MAPPED TO UPPER LEFT

4 X=421.04 Y=364.43 FROM QUAD LOWER RIGHT MAPPED TO LOWER RIGHT

5 X=20.67 Y=384.41 FROM QUAD LOWER LEFT MAPPED TO LOWER LEFT

FINAL CALIBRATION MARK INFORMATION:

UPPER LEFT IX=5.1 IY=29.0 COL=1977.2 ROW=579.4 UX=282432.7 UY=4675476.0

UPPER RIGHT IX=418.1 IY=7.9 COL=2029.0 ROW=567.7 UX=285455.6 UY=4675471.0

LOWER LEFT IX=20.7 IY=384.4 COL=1986.4 ROW=619.0 UX=282436.1 UY=4673146.0

LOWER RIGHT IX=421.0 IY=364.4 COL=2036.7 ROW=608.1 UX=285371.5 UY=4673113.0

EXTRA IX=445.7 IY=7.8 COL=2032.5 ROW=567.0 UX=285661.1 UY=4675467.0

WINDOW COORDS=566,1977 : 619,2037

TOTAL ACRES=1725.64 TOTAL SCAN PIXELS=144972.10 SCALE=0.012

44 FIELDS REMAIN AFTER COMBINING FIELDS FROM AN ORIGINAL 45

5493 MASK WORDS USED

FILE TRANSFER FROM THE 11-44 TO BBN

{Info within brackets is for user note and not part of program dialog}

```
>RUN $FTRANS      {The "$" is shorthand for specifying system directory}
REMOTE TTY DEVICE NUMBER = 6  {6 is a 2400 BAUD Line; 2 is a 1200 Baud Line}
TALK. (ENTER !! FOR HELP)
<^C> {No prompt here--the control-C gets BBN's attention}
Trying
```

```
BBN-TENEX 1.35.12, BBN-SYSTEM-B EXEC 1.54.2
@LOGIN ZUTTERMEISTER      etc, etc, etc
```

```
·
·
·
@<SRS2>FROM11.SAV;83165
```

```
TYPE OF FILE=?
```

```
COMMANDS ARE:
```

```
ASCII
```

```
BINARY
```

```
TYPE OF FILE=BINARY
```

```
OUTPUT FILE=6211.MSK      {The name as you want it to appear at BBN}
```

```
{There is no prompt here}
```

```
!S
```

```
LOCAL FILE NAME = *6211.MSK {Preceding the file name with the "*"}
BLOCK LENGTH = 500          {allows specification of block length.}
                             {Default is 1000 but the first file sent}
                             {should use a smaller block size.}
```

```
AWAWAWAWWNWAWAWA      {As before A=acknowledge, W=write block, }
                        {N=not acknowledge}
```

This Program is NOT reliable
For Transferring binary files
AS OF 1 JAN '84.

Before MASK Transfer begins
June '84 more development work
IS NECESSARY.

BBN MASK CONVERSION TO EDITOR FORMAT

REGISTRATION AND DIGITIZATION FUNCTIONS

DIVIDED DIGITIZATION FUNCTIONS

3!?

CALIBRATION CREATION

MASK CONVERSION

QUIT

3!MASK CONVERSION

LOG ENTRY #14889

VIDEO TO EDITOR MASK CONVERSION, VERSION 1.0

ENTER DIRECTORIES, CRLF ONLY TO QUIT

*

NO DIRECTORIES SPECIFIED

STATE AND YEAR IDENTIFIER (CRLF FOR NONE)=C082

MASK DATE (CRLF FOR NONE)=JUNE 17,1983

INPUT FILE OF SHIFTS (CRLF FOR NONE)=AD35G.PSEUDO/SHIFTS;1 [Old version]

SEGMENT 6096 PART 1 OF 1

INPUT HALF-PIXEL WINDOW=2060,4618,2121,4706

NUMBER OF FIELDS=4

OUTPUT WINDOW=1030,2309,1061,2353

EXPANDED INPUT WINDOW=2059,4617,2122,4706

FRAME=31504-16590

OUTPUT MASK FILE=<ZUTTERMEISTER>6096.MASK/31504-16590/C082;1

SEGMENT 6097 PART 1 OF 1

INPUT HALF-PIXEL WINDOW=2408,5873,2474,5942

NUMBER OF FIELDS=6

OUTPUT WINDOW=1204,2936,1237,2971

EXPANDED INPUT WINDOW=2407,5871,2474,5942

FRAME=31504-16590

OUTPUT MASK FILE=<ZUTTERMEISTER>6097.MASK/31504-16590/C082;1

SEGMENT 6101 PART 1 OF 1

INPUT HALF-PIXEL WINDOW=3654,4157,3723,4228

NUMBER OF FIELDS=9

OUTPUT WINDOW=1827,2078,1862,2114

EXPANDED INPUT WINDOW=3653,4155,3724,4228

FRAME=31504-16590

OUTPUT MASK FILE=<ZUTTERMEISTER>6101.MASK/31504-16590/C082;1

SEGMENT 6102 PART 1 OF 1

INPUT HALF-PIXEL WINDOW=4293,3853,4359,3942

NUMBER OF FIELDS=7

OUTPUT WINDOW=2146,1926,2180,1971

EXPANDED INPUT WINDOW=4291,3851,4360,3942

FRAME=31504-16590

OUTPUT MASK FILE=<ZUTTERMEISTER>6102.MASK/31504-16590/C082;1

SEGMENT 6103 PART 1 OF 1

INPUT HALF-PIXEL WINDOW=4791,4100,4866,4185

NUMBER OF FIELDS=4

OUTPUT WINDOW=2395,2050,2433,2093

EXPANDED INPUT WINDOW=4789,4099,4866,4186

FRAME=31504-16590

OUTPUT MASK FILE=<ZUTTERMEISTER>6103.MASK/31504-16590/C082;1

LOG ENTRY #14893

3!Q

WINDOW COORDINATES FILE OUTPUT

TYPE AD35G.CRD
10,2288,1082,2374,6096
1183,2916,1258,2992,6097
1806,2058,1883,2135,6101
2126,1905,2200,1992,6102
2375,2030,2454,2115,6103
1834,2696,1912,2773,6106
2070,2690,2146,2766,6107
1598,2024,1687,2094,7100
1733,2907,1814,2986,7105
979,1913,1073,1993,7110
1986,419,2062,495,7190
2065,410,2129,485,7190

{These coordinates are used to pull windows at BBN.
{The file can be FTRANSED up or info can be entered.
{directly via XED or TECO}

CREATING PLOTS OF VIDEO MASK FILES

> RUN #MASK
request "P" type output

PLOT 11

>RUN \$SHFILE
OUTPUT LISTING FILE=SEGSPLT.PLX
SEGMENT NUMBER OR MASK FILE=6096
SEGMENT=6096 PART 1 OF 1
LANDSAT MASK WINDOW: 1030,2308,1062,2354
SEGMENT NUMBER OR MASK FILE=6097
SEGMENT=6097 PART 1 OF 1
LANDSAT MASK WINDOW: 1203,2936,1238,2972
SEGMENT NUMBER OR MASK FILE=6101

> {*PFL* is a system command--PRINT FILE}
>PFL SEGSPLT.PLX {Always use the ".PLX" extension on plot files}
> {otherwise the Printronix/Northstar get hung up}
{and have to be reset.}