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JSC-14546 NASA CR- 160686

"AS-BUILT" DESIGN SPECIFICATION FOR SCATTER PLOTS FOR DIRECT WHEAT

Job Order 71-475

TIRF 78-0027

(E80-10250) AS-BUILT DESIGN SPECIFICATION FOR SCATTER PLOTS FOR DIRECT WHEAT (Lockheed Electronics Co.) 66 p HC A04/MF A01 CSCL 02C

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Contract NAS 9-15200

For

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SCIENCE AND APPLICATIONS DIRECTORATE

National Aeronautics and Space Administration

LYNDON B. JOHNSON SPACE CENTER

Houston, Texas

October 1978 LEC-12822

CHANGE 1 INSERTED

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CHANGE SHEET
FOR
"AS-BUILT" DESIGN SPECIFICATION
FOR
SCATTER PLOTS FOR DIRECT WHEAT

TIRF 79-0001

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J. I. Morrow, Supervisor
Scientific Applications Software Section

Page 1 of 27 pages
(with enclosures)

After the attached replacement pages have been inserted and the following pen and ink changes have been made, insert this change sheet between the cover and the title page and write on the cover "Change 1 inserted".

Note: A black bar in the margin of the replacement page indicates the information that was changed or added. Added and replaced pages are designated by a notation in the lower righthand corner.

1. Remove page 2-1 and insert replacement page 2-1.

2. Pages 3-10, para. 3.2, 3.3, change "called subroutines" to "calling routine".

3. Page 3-13, para. 3.2.5.1, change "SPLT" to "SWPLT".

4. Page 3-13, para. 3.2.5.3, change "(fig)" to "(fig 4)".

5. Remove Figure 4 (following page 3-13) and insert replacement Figure 4.

6. Remove page 3-14 and insert replacement page 3-14.

7. Remove page 3-16 and insert replacement page 3-16.

8. Remove CAMPLT output and CAMPLT listing (22 pages following page 3-17) and insert replacement CAMPLT output and CAMPLT listing (22 pages).

Signature of person incorporating changes

Date

LEC-12822

JSC- 14546

"AS-BUILT" DESIGN SPECIFICATION FOR SCATTER PLOTS FOR DIRECT WHEAT

Job Order 71-475

TIRF 78-0027

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1. SCOPE

This document describes the programs which together provide the capability of producing scatter plots in two different projections for use by CAMS in implementing the direct wheat procedure.

2. APPLICABLE DOCUMENTS

1. Giddings, L. E.; etal.
   "As-Built" Design Specification for the CAMS Image-100 Hybrid System. August 1977 Job Order 71-195, LEC-10822, Contract NAS-9-15800.

2. Earth Resources Data Format Control Book, Vol 1 Section 6 PHO-TR543.

3. CAMS/CAS Interface Tape Interface Control Document (Rev. B) Feb 1978 LACIE - C00708 (Rev. B) JSC-11328.

4. Software Requirements for Scatter Plots to Aid With Direct Wheat Procedures (TIRF 78-0027) 5/18/78.

5. Large Area Crop Inventory Experiment (LACIE) Users Guide Vol IBM - Federal Systems Division Contract NAS 9-14350.

6. TIRF 79-0001, Landsat "C" Upgrade to "CAMPLT".

Change 1
March 8, 1979

3. SYSTEM DESCRIPTION

3.1 HARDWARE DESCRIPTION

Not applicable.

3.2 SOFTWARE DESCRIPTION

The programs described herein provide the capability to load the spring wheat data file with spectral values from spectral unload tapes, and analyst labels from CAMS/CAS Interface tapes, then, under analyst control, produce spectral plots using this data. These programs are run separately in batch mode.

3.2.1 SOFTWARE COMPONENT NO. 1 (DOTLDB)

The program DOTLDB (DOT LOAD BATCH) reads a spectral unload utility tape and stores the spectral values found there for the 209 grid points in the Spring Wheat Data File. This data is loaded in 'natural' dot order.

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3.3. DATA FLOW

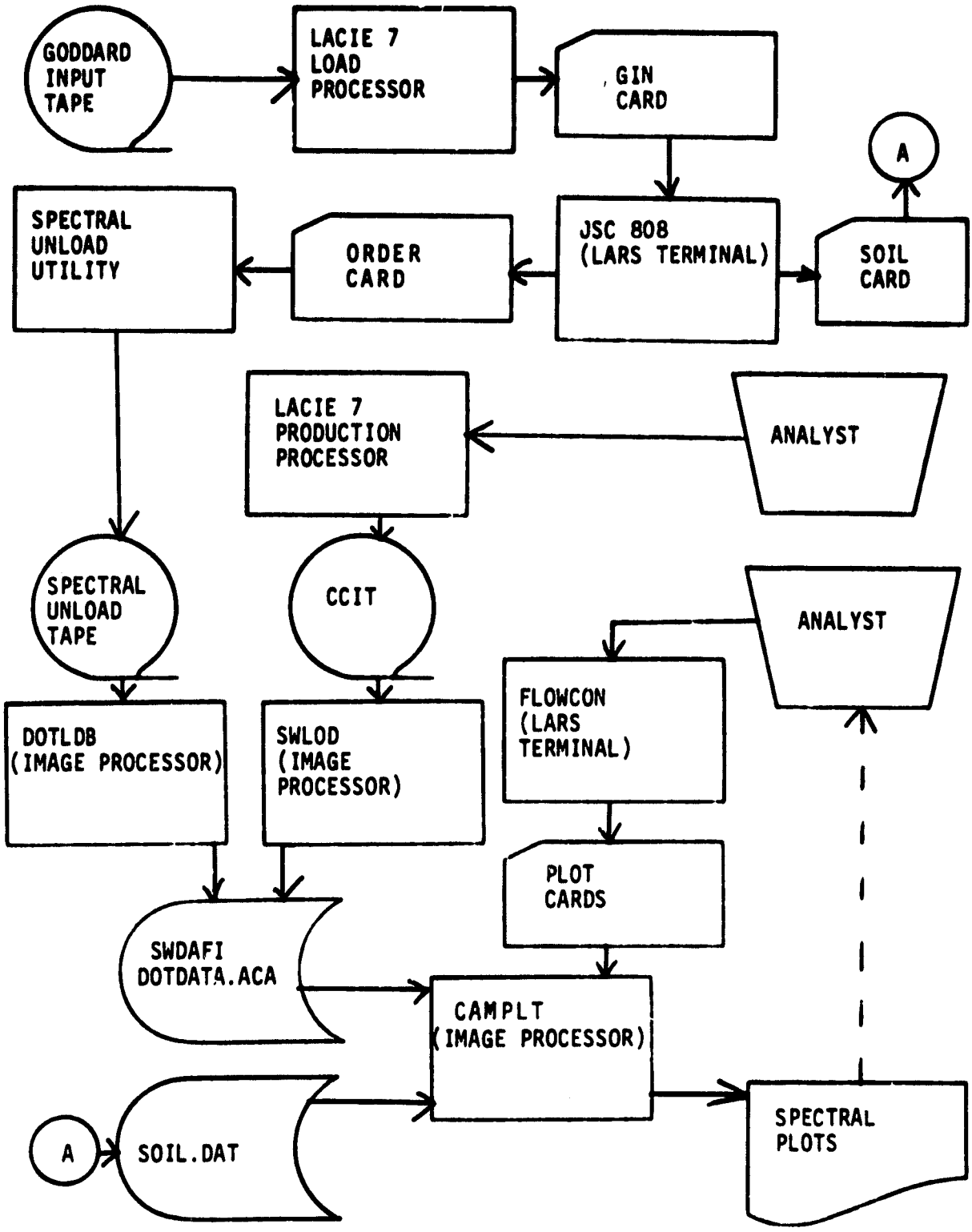

Figure 1 Data Flow

3.2.1.1 Linkages

DOTLDB run in batch mode. It calls several entries to LECTAP: EBTASC, IDATE, SWAB, TATCH, TFILE, TIME, TINIT, TREAD, TRWD, TWAIT (ref.1)

In addition it calls STORX.

3.2.1.2 Interfaces

Entries to LECTAP interface through the calling sequence and and through labeled common /STATUS/.

The interface to STORX is through the calling sequence and the labeled common /ANCIL/.

3.2.1.3 Inputs

DOTLDB is run in batch mode by the following deck:

```
$JOB/NAME=CAMS/MCK/ACCOUNT=160 250
$DATA
0 0 999
$EOD
$MCK RUN DOTLDB
$EOJ
```

DOTLDB reads a spectral unload utility tape from the ERIPS system. A spectral unload utility tape is in universal format. The header is identical to the usual image unload tape header. The image is replaced with spectral values for the 209 grid points. One tape may contain 1000 acquisitions. DOTLDB will handle 999 acquisitions.

3.2.1.4 Outputs

DOTLDB creates a report on the line printer reporting each segment loaded to the Spring Wheat Data File (fig2).

SPECTRAL DATA UNLOAD REPORT 'SWCHNo'

PAGE 1
DATE 9/29/78
TIME 14:25:26

M 772XX

SEGMENT NO.	YEAR	JULIAN DATE
1844	78	257
194	78	257
183	78	257
1567	78	257
1848	78	257
867	78	257
878	78	257
899	78	257
893	78	257
870	78	257
882	78	257
849	78	257
879	78	257
875	78	257
868	78	257
884	78	257
863	78	257
866	78	257
871	78	257
898	78	257
885	78	257
890	78	257
139	78	257
883	78	257
894	78	257
874	78	257
865	78	257
886	78	257
892	78	257
862	78	257
209	78	257
206	78	257
136	78	257
202	78	257
217	78	257
1903	78	246
821	78	235
808	78	235
108	78	235
119	78	235
219	78	235
813	78	235
102	78	235
810	78	235
106	78	235
198	78	235
812	78	235
105	78	235
811	78	235
174	78	235

Figure 2 DOTDLB REPORT

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The spectral values for 209 points are passed to STORX to be stored in [200,7] DOTDATA.ACA under the code 'SWCHJ' where J=1, ...,4 is the channel number, with the acquisition date for date (DAT(1), DAT(2)).

3.2.1.5 Storage

Total space allocated = 6727.

3.2.1.6 Description

DOTLDB first reads the batch deck to identify the tape drive used and the number of acquisitions to be loaded. It then initializes the tape drive and starts processing. The processing is accomplished in a DO Loop which reads the header, obtains the segment number and date, then reads the dot data. The dot data is loaded into 4 linear arrays (CHJ(209), J=1,4) in natural order, not the order implied by the (11,19) dimensioning in STORX, and passed to STORX for storing. After this processing, is complete, for all acquisitions, the tape is rewound and a line printer report is created.

3.2.1.7 Flowchart

Not applicable.

3.2.1.8 Listing

```
        C       DATLOB FORTRAN      KEN PATTISON     AUG '78
        C
        C       THIS PROGRAM READS SPECTRAL UNLOAD UTILITY TAPES
        C       IT USES STORK TO LOAD THE VALUES READ TO THE
        C       SPECTRAL HEAT DATA FILE  [200,7]SPTDATA.ACA
        C       THE DATA IS LOADED IN NATURAL ORDER NOT (11,19) ORDER
        C
        C       DATLOB RUNS IN BATCH MODE
        C       TAPES ARE ORDERED THAT ALLOW JOB WITH CARDS GENERATED
        C       ON TAPE SUBMITTED ON CRUISE AS JSC=UE
        C       FLOPPY FILL SHOULD PROVIDE THE TAPES
        C           COMMENTS BY T.A. EDMANDS
        C
0001            IMPLICIT INTEGER*2 (A-Z)
0002            DIMENSION CH1(209),CH2(209),CH3(209),CH4(209)
0003            DIMENSION INDX1(11),INDX2(11),E(4)
0004            DIMENSION AA(3),PRTFIL(3,1000)
0005            BYTE BUFF1(3000),BUFF2(1200),A(6),C(4),F(4)
0006            COMMON /A DIL/CHDF,DATE(2),STATUX,FILL(36)
0007            COMMON /STATUS/M1,M2
0008            EQUIVALENCE (SPECTR,BUFF1(67)),(A(5),F(1))
0009            DATA INDX1/73,168,263,358,453,548,643,738,833,928,1023/
0010            DATA INDX2/1,20,39,58,77,96,115,134,153,172,191/
0011    100     FORMAT(6A1)
0012    104     FORMAT(1H ,' ')
0013    105     FORMAT(1H ,4X,'SPECTRAL DATA ',=',I4,4X,'YEAR=',I4,4X,
                •       'JULIAN DATE=',I4)
0014    107     FORMAT(1H1,40X,'SPECTRAL DATA UNLOAD REPORT',10H 'SWCHNO' ,
                C       24X,'PAGE ',I2)
0015    108     FORMAT(1H5,4X,'INPUT NUMBER OF FILES TO BE LOADED >')
0016    109     FORMAT(1H ,43X,'SEGMENT NO.',3X,'YEAR',2X,'JULIAN DATE')
0017    110     FORMAT(I2)
0018    111     FORMAT(I4)
0019    112     FORMAT(1H ,46X,I4,6X,I4,6X,I4)
0020    113     FORMAT(1H ,106X,'DATE ',I2,'/',I2,'/',I2)
0021    114     FORMAT(1H ,106X,'TIME ',4A2)
0022            CALL ASSIGN(6,'LPT')
0023            XX=0
0024            MTXTFG=0
0025            DRIVE=0
0026            M=1
0027            LINCTR=51
0028            PAGE=0
0029            CALL IDATE(X,Y,Z)
0030            CALL TIME(E)
0031            OPEN(UNIT=1,NAME='FOR001.DAT',TYPE='OLD')
0032            READ(1,100) (A(J),J=1,6)  !CARD INPUT
0033            IF(A(1) .EQ. '1') MTXTFG=1
0034            IF(A(5) .EQ. '1') DRIVE=1
0035            DECODE(3,111,F) TOTFIL
        C
        C                   THE SUBROUTINES CALLED ARE ALL FROM LECTAP
        C
0036            CALL TINIT(2,MTXTFG,DRIVE)
0037            CALL TATCH(2)
0038            CALL TRAD(2)
```

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```
0039          DO 20 B=1,TOTFIL
0040          CALL TREAD(2,BUFF1,1536)
0041          CALL TWAIT(2)
0042          IF(.1 .EQ. "366) GO TO 30
0043          CALL SWAP(SEGNM)
0044          CALL PRTASC(BUFF1(2249),A(1),5)
0045          C(1)=A(2)
0046          C(2)=A(1)
0047          DECODE(2,111,C(1)) DATE(1)
0048          CALL PRTASC(BUFF1(2251),A(1),5)
0049          C(1)=A(2)
0050          C(2)=A(1)
0051          C(3)=A(3)
0052          DECODE(3,111,C(1)) DATE(2)
0053          XX=XX+1
0054          PRTFIL(1,XX)=SEGNM
0055          PRTFIL(2,XX)=DATE(1)
0056          PRTFIL(3,XX)=DATE(2)
0057          CALL TREAD(2,BUFF2,630)
0058          CALL TWAIT(2)
0059          IF(.1 .EQ. "366) GO TO 30
0060          CALL TFILE(2,1)
0061          DO 10 P=1,11      !LOAD CHANNEL ARRAYS (CH1 ETC.)
0062          J=INDX1(P)        !IN NATURAL (19,11) ORDER
0063          K=INDX2(P)        !NOT (11,19) IMPLIED BY STORX (AND FETCX)
0064    1     CH1(K)=BUFF2(J)
0065          CH2(K)=BUFF2(J+19)
0066          CH3(K)=BUFF2(J+38)
0067          CH4(K)=BUFF2(J+57)
0068          J=J+1
0069          K=K+1
0070          IF(K .NE. (INDX2(P) +19)) GO TO 1
0071    10    CONTINUE
0072          CALL STORX(SEGNM,CH1,'SKCH1*')
0073          CALL STORX(SEGNM,CH2,'SKCH2*')
0074          CALL STORX(SEGNM,CH3,'SKCH3*')
0075          CALL STORX(SEGNM,CH4,'SKCH4*')
0076    20    CONTINUE
0077    30    CALL TRAP(2)
0078          CALL TWAIT(2)
0079          DO 35 D=1,XX      !WRITE THE LINE PRINTER REPORT
0080          IF(LINCTR .EQ. 55) GO TO 31
0081    32    LINCTR=LINCTR+1
0082          WRITE(6,112) (PRTFIL(G,D),G=1,3)
0083          GO TO 35
0084    31    LINCTR=0
0085          PAGE=PAGE+1
0086          WRITE(6,107) PAGE
0087          WRITE(6,113) X,Y,Z
0088          WRITE(6,114) (F(L),L=1,4)
0089          WRITE(6,109)
0090          GO TO 32
0091    35    CONTINUE
0092          WRITE(6,104)
0093          STOP
0094          END
```

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PROGRAM SECTIONS

NUMBER	NAME	SIZE		ATTRIBUTES
1	[illegible] 1	001412	453	RW,I,CON,LCL
2	[illegible]DATA	000114	38	RW,D,CON,LCL
3	[illegible]DATA	000448	144	RW,D,CON,LCL
4	[illegible]	027500	6046	RW,D,CON,LCL
5	[illegible]S	000004	2	RW,D,CON,LCL
6	A[illegible]	000120	40	RW,D,OVR,GBL
7	STAT S	000004	2	RW,D,OVR,GBL

VARIABLES

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
B	I*2	4-027464	CODE	I*2	6-000006	D	I*2	4-027472	DRIVE	I*2	4-027442	G	I*2	4-027474
J	I*2	4-027470	K	I*2	4-027478	L	I*2	4-027476	LINCTR	I*2	4-027446	M	I*2	4-027444
MTAPE	I*2	4-027441	P	I*2	4-027460	PAGE	I*2	4-027450	SEGNO	I*2	4-001142	STATUS	I*2	5-000006
TRFIL	I*2	4-027462	W1	I*2	7-000006	W2	I*2	7-000002	X	I*2	4-027452	XX	I*2	4-027436
Y	I*2	4-027454	Z	I*2	4-027456									

ARRAYS

NAME	TYPE	ADDRESS	SIZE		DIMENSIONS
A	L*1	4-000000	000010	4	(8)
AA	I*2	4-011270	000006	3	(3)
BUFF1	L*1	4-000011	005764	1530	(3060)
BUFF2	L*1	4-025056	002354	630	(1260)
C	L*1	4-027432	000004	2	(4)
CH1	I*2	4-005774	000642	209	(209)
CH2	I*2	4-006636	000642	209	(209)
CH3	I*2	4-007500	000642	209	(209)
CH4	I*2	4-010342	000642	209	(209)
DATE	I*2	6-000002	000004	2	(2)
E	I*2	4-011260	000010	4	(4)
F	L*1	4-000004	000004	2	(4)
FILL	I*2	6-000010	000110	36	(36)
INDX1	I*2	4-011204	000026	11	(11)
INDX2	I*2	4-011232	000026	11	(11)
PRTFIL	I*2	4-011276	013560	3010	(3,1010)

LABELS

LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS
1	1-000712	10	**	20	**	30	1-001124	31	1-001314
32	1-001204	35	1-001542	100'	3-000000	104'	3-000004	105'	**
107'	3-000014	108'	**	109'	3-000106	110'	**	111'	3-000160
112'	3-000164	113'	3-000204	114'	3-000232				

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```
FORTRAN IV-PLUS V02-51          07:53:38    08-SEP-78          PAGE 4
DBTLDB.FTN       /TR:BLOCKS/WR

FUNCTIONS AND SUBROUTINES REFERENCED

 ASSIGN  EDT:SC  IDATE   OPEN$   STORX   SWAB    TATCH   TFILE   TIME    TINIT   TREAD   TRWD    TWAIT

TOTAL SPACE ALLOCATED = 032216  6727

NO FPP INSTRUCTIONS GENERATED

DBTLDB,LP:=DBTLDB
```

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3.2.2 SOFTWARE COMPONENT NO. 2 (SWLOD)

SWLOD (Spring Wheat Load) reads a CCIT tape and, for each spring wheat segment, loads the analyst dot labels into the Spring Wheat Data File.

3.2.2.1 Linkages

SWLOD runs in batch mode from a deck. It calls CDRED and LABLOD. CDRFD is documented in (ref.1).

3.2.2.2 Interfaces

SWLOD and LABLOD interface with CDRED through the calling sequence and the labeled commons /CBIAS/, /DUMMY/, /CLCOM/. These are implemented by the statement INCLUDE 'COMMON1.DAT'.

3.2.2.3 Inputs

The batch deck for SWLOD is:

```
$JOB/NAME=CAMS/MCR/ACCOUNT=160 250
$DATA
M
1
$EOD
$MCR RUN SWLOD
$EOJ
```

SWLOD reads a standard LACIE 7 CAMS-CAS interface tape. Full description of this tape can be found in (ref.).

3.2.2.4 Outputs

None.

3.2.2.5 Storage

Total space allocated = 8015.

3.2.2.6 Description

SWLOD is the driver for the program which loads analyst labels to Spring Wheat Data File. CDRED on first calling, determines from the batch deck, which tape unit to read. CDRED then reads one record. SWLOD tests each record to determine whether it is a header record or an End Of File record. For header records, segment number and spring wheat marker are obtained. If the spring wheat marker is 'S', then LABLOD is called when a 'D' record is found.

3.2.2.7 Flowchart

Not applicable.

3.2.2.8 Listing

```
SALSD,FT[illegible]  /TYPEL CXS/LP

      C     SALSD LANDS  ANALIST LABELS FROM CCIT BSYZ SRDARI DATA BASE
      C           [illegible] A. BERNARDES  AUGUST 1976
      C
      IMPLICIT I TO R(A-Z)
      INCLUDE 'COMMON1.DAT'
      BYTE CLASFY(416),CLOUT(416)
      LOGICAL TYPE(269),LABLEF(269)
      LOGICAL HALAB(26),HUCLAB(26),HUCLAB(26),GRAINS(26)
      REAL PCC1,PCC2,PCCG1,PCCG2,PCL1,PCL2,PCLG1,PCLG2
      REAL CLAD,CLOD,TCCNS,RCCNS,CCCNS
      REAL BATCH,BUTCH,BARCHN,BURCHN
      DIMENSION CLAD(2),CLOD(2),TCCNS(2,8),CCCNS(2),RCCNS(2,8,8)
      DIMENSION BATCH(2,8),BUTCH(2,8),BARCHN(2,8,8),BURCHN(2,8,8)
      DIMENSION [illegible](26,26),RCCL(26,26)
      DIMENSION BAPAR(30),BUPAR(30)
      COMMON/CONTAS/BAPAR,BUPAR,PARALLEL,HUCNC2,BACNR,BUCNR,BACATN,HUCATN,
     *                BAVAR,BUVAR,BARANS,BURANS,A,DE,DU,TC,BUCATS,HUCLAB,
     *                HULABL,HALAB1,CLASFY,TYPE,LABLEF,HACATS,BACLAB,AUNC2,
     *                PCC1,PCC2,PCCG1,PCCG2,PCL1,PCL2,PCLG1,PCLG2,APAR,
     *                [illegible],CLAD,CLOD,TCCNS,RCCNS,CCCNS,
     *                BATCH,BUTCH,BARCHN,BURCHN,HLABG,GRAINS
      COMMON/DUMMY/CLAD,CLOD
      COMMON/CLCOMM/CLOUT
      REAL X(3,2)
      DIMENSION BAUNCR(30),BUNCR(30),BACUR(30),BUCUR(30)
      REAL RCCL(25,25),RCCL(26,26),BAVAR(30),BUVAR(30)
      REAL BAVARS(30),BUVARS(30)
      LOGICAL IBUF(3600),S
      INTEGER2 ARRAY(11:19)
C
      WRITE(5,6)
    6 FORMAT(42X,'ANALIST LABEL UNLOAD REPORT',
     C 17H  'SRDARI'  7:30    )
      S=0
      SEGNO=0
    2 FORMAT(' ',A4)
      FILE=0
      R=0
    1 CONTINUE
      CALL TAPE(IBUF,R,FILE)  !READ CCIT RECORD
            PRINT 2, IBUF(1)
C           IF(IBUF(1) .EQ. 'RV') PRINT 2,IBUF(2)
            IF(IBUF(1).EQ.'E') PRINT 109
            IF(IBUF(1) .EQ. 'EV') STOP  'NORMAL'
      R=R+1
      IF(IBUF(1).EQ.'RV'.AND.IBUF(2).LE.'1'.OR.IBUF(2).GE.'10')  !HEADER RECORD
  109       FORMAT('            ')
      IF(IBUF(1) .EQ. 'D' .AND. S .EQ. 'S')
     C      CALL LABLAD(IBUF,R,FILE,SEGNO)  !SPRING WHEAT?
      IF(IBUF(1) .EQ. 'D' .AND. S .EQ. 'S') SEG
      GO TO 3
   10       IS1=IBUF(148)-48  !DECODE HEADER
            IS2=IBUF(149)-48
            IS3=IBUF(150)-48
            IS4=IBUF(151)-48
      SEG=((IS1*10+IS2)*10+IS3)*10+IS4
      IF(S .EQ. 0) GO TO 1
```

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```
0045          SEG.M = SEG
0046          SETTING(152)
        D     PRINT 3, SEG.M,S,IBUF(148),IBUF(149),IBUF(150),
        C           IBUF(151),IBUF(152),IBUF(153)
        D     TYPE 3, SEG.M,S
0047      3   FORMAT(X,I6,X,I6,X,I6,X,A3,4I4,3X4)
0048          GO TO 1
0049          END
```

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PROGRAM SECTIONS

NUMBER	NAME	SIZE		ATTRIBUTES
1	[illegible]	000422	137	RW,I,CON,LCL
2	[illegible]	[illegible]	4	RW,D,CON,LCL
3	[illegible]	[illegible]	42	RW,D,CON,LCL
4	[illegible]	[illegible]	1748	RW,D,CON,LCL
6	[illegible]	[illegible]	5673	RW,D,2VR,GBL
7	[illegible]	[illegible]	2	RW,D,2VR,GBL
8	[illegible]	000642	209	RW,D,2VR,GBL

VARIABLES

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
APBP	I*2	6-016133	ADNC2	I*2	6-015066	BACATS	I*2	6-016032	BATZT	I*2	6-023352	BUCATS	I*2	6-014208
[illegible]	I*2	6-023354	CLADUM	I*2	7-000000	CLUDUM	I*2	7-000002	DP	I*2	6-014200	DU	I*2	6-014202
FILE	I*2	4-006632	IM1	I*2	4-006636	IM2	I*2	4-006640	IM3	I*2	4-006672	IM4	I*2	4-006644
[illegible]	I*2	6-024706	PCCG1	R*4	6-016100	PCCG2	R*4	6-016104	PCC1	R*4	6-016070	PCC2	R*4	6-016074
PCLG1	R*4	6-016120	PCLG2	R*4	6-016124	PCL1	R*4	6-016110	PCL2	R*4	6-016114	R	I*2	6-006634
S	L*1	4-005764	SFG	I*2	4-006646	SFGN0	I*2	4-006630	TC	I*2	6-014204			

ARRAYS

NAME	TYPE	ADDRESS	SIZE		DIMENSIONS
A	R*4	6-014156	000030	12	(3,2)
ARRAY	I*2	4-005766	000642	209	(11,19)
BACAIN	R*4	6-005550	005220	1352	(26,26)
BACLAB	L*1	6-016034	000032	13	(26)
BACOR	I*2	6-000350	000074	30	(30)
BALABL	L*1	6-014274	000032	13	(26)
BAPOP	I*2	6-000[illegible]	000074	30	(30)
BARANS	R*4	6-013571	000170	60	(30)
[illegible]	R*4	6-024706	001000	256	(2,8,8)
BATC[illegible]	R*4	6-024506	000100	32	(2,8)
BA[illegible]	I*2	6-000170	000074	30	(30)
BAVAR	R*4	6-013210	000170	60	(30)
BCVA	I*2	6-016132	002510	676	(26,26)
BCVU	I*2	6-020642	002510	676	(26,26)
BUCAIN	R*4	6-005770	005220	1352	(26,26)
BUCLAB	L*1	6-014210	000032	13	(26)
BUCOR	I*2	6-000454	000074	30	(30)
BULABL	L*1	6-014242	000032	13	(26)
BUPOP	I*2	6-000074	000074	30	(30)
BURANS	R*4	6-013766	000170	60	(30)
BURCOR	R*4	6-025706	001000	256	(2,8,8)
BUTC[illegible]	R*4	6-024606	000100	32	(2,8)
BU[illegible]	I*2	6-000264	000074	30	(30)
BUVAR	R*4	6-013400	000170	60	(30)
COUNS	R*4	6-024476	000010	4	(2)
CLAD	R*4	6-023356	000010	4	(2)
CLASFY	L*1	6-014325	000642	209	(418)

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CLOBT	L*1	8-000010	000642	209	(418)
[illegible]	[illegible]	[illegible]	000010	4	(2)
GRAINS	L*1	6-[illegible]	000032	13	(26)
[illegible]	L*1	[illegible]	005754	1533	[illegible]
LOLAD	L*1	6-15511	000321	104	(209)
[illegible]	L*1	6-[illegible]	[illegible]	255	[illegible]
TOLS	L*1	6-23376	[illegible]	32	[illegible]
TYPE	L*1	6-[illegible]	000321	104	[illegible]

LABELS

LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS
1	1-000066	2'	**	3'	**	6'	3-000000	10	1-000256
1[illegible]	3-[illegible]								

FUNCTIONS AND SUBROUTINES REFERENCED

CDRES LABLED

TOTAL SPACE ALLOCATED = 037236 [illegible]

[illegible] INSTRUCTIONS GENERATED

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3.2.3 SOFTWARE COMPONENT 3 (LABLOD)

LABLOD (LABEL LOAD) calls CDRED to get all analyst labels, puts them in an (11,19) array, passes them to STORX for storage and writes a line of the report.

3.2.3.1 Linkages

Subroutine LABLOD is called by SWLOD each time a spring wheat file is found on the CCIT. It calls CDRED and STORX.

3.2.3.2 Interfaces

Interfaces with SWLOD and CDRED are the calling sequence and labeled commons /CBIAS/, /DUMMY/, /CLCOM/.

Interface with STORX is through the calling sequence and the labeled common /ANCIL/.

3.2.3.3 Inputs

All inputs are through the calling subroutines.

3.2.3.4 Output

The analyst labels are passed to 'STORX' under the code name 'SWDAFI' (for Spring Wheat Data File) with the fixed date 78,000. The fixed date means only the most recent labels are accessable.

For each batch of labels loaded, one line of printer output is generated.

82710C

```
ANALIST LABEL UNLOAD REPORT 'SHDAFI' 78000
SEGMENT   1686  LOADED
SEGMENT   1686  LOADED
SEGMENT   1686  LOADED
```

Figure 3 OUTPUT FROM LABLOD

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3.2.3.5 Storage

Total space allocated = 6873

3.2.3.6 Description

LABLOD first sets the storage date to 78,000. It then loads and reads analyst dot labels into an array which is (11,19). This is not the natural dot order. Having loaded all the dot labels, they are passed to STORX for storage under the code 'SWDAFI' at date 78,000. Then control is passed back to SWLOD.

3.2.3.7 Flowchart

Not applicable.

3.2.3.8 Listing

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```
0049    100         FORMAT('          ')
0050              IF(IDOF(1) .EQ. 'EX') STOP  'NORMAL'
0051        . REC=REC+1
0052          IF(REC .EQ. 14) GETSW=14
0053          GO TO 2
0054        3 CONTINUE
0055              WRITE(6,66)((ARRAY(I,J),I=1,11),J=1,19)
0056       66     FORMAT('    ',I1)
           1      CALL STORX (SEGN,ARRAY,'SHDAFI')  ISTORE THE DATA
0057              PRINT 6765,SEGN  WRITE ONE LINE OF REPORT
0058              IF(STATUS .NE. 0) WRITE(6,67) STATUS
0059       67     FORMAT('    STORE ERROR   STATUS=',I4)
0060       6765    FORMAT(30X,'  SEGMENT',I7,'  LOADED')
0061              RETURN
0062        4      CALL FETCX(SEGN,ARRAY,'SHDAFI')
0063              WRITE(6,66) ((ARRAY(I,J),I=1,11),J=1,19)
0064              IF(STATUS .NE. 0) WRITE(6,68)
0065       68     FORMAT('    FETCH ERROR    STATUS =',I4)
0066              IF(STATUS .NE. 0) STOP  'STATUS ERROR'
0067          RETURN
0068          END
```

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PROGRAM SECTIONS

NUMBER	NAME	SIZE		ATTRIBUTES
1	[illegible]	001[illegible]	269	RW,I,CON,LCL
2	[illegible]ATA	000[illegible]	15	RW,D,CON,LCL
3	[illegible]ATA	000212	69	RW,D,CON,LCL
4	[illegible]	[illegible]	427	RW,D,CON,LCL
6	[illegible]	[illegible]	5873	RW,D,OVR,GBL
7	[illegible]	[illegible]	2	RW,D,OVR,GBL
8	[illegible]	000642	209	RW,D,OVR,GBL
9	[illegible]	[illegible]	40	RW,D,OVR,GBL

ENTRY POINTS

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
[illegible]		1-000[illegible]												

VARIABLES

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
[illegible]	I*2	[illegible]	[illegible]	I*2	[illegible]	BACATS	I*2	8-016032	[illegible]	I*2	[illegible]	[illegible]	I*2	8-014200
[illegible]	I*2	[illegible]	CLADU	I*2	7-000000	CLUDUM	I*2	7-000002	CODE	I*2	9-000000	DS	I*2	6-014200
[illegible]	I*2	[illegible]	FILE	I*2	[illegible]	I	I*2	4-001522	J	I*2	4-001524	L	I*2	4-001512
LFLD	I*2	4-001510	N	I*2	4-001520	NLABG	I*2	6-026706	P	I*2	4-001514	PCCG1	R*4	6-016100
PCCG2	R*4	6-016104	PCC1	R*4	6-016070	PCC2	R*4	6-016074	PCLG1	R*4	6-016120	PCLG2	R*4	6-016124
PCL1	R*4	6-016110	PCL2	R*4	6-016114	R	I*2	F-000004*	REC	I*2	4-001504	RJ	I*2	4-001516
SEG[illegible]2	I*2	F-000[illegible]*	SETSR	I*2	[illegible]	STATUS	I*2	9-000006	TC	I*2	6-014204			

ARRAYS

NAME	TYPE	ADDRESS	SIZE		DIMENSIONS
A	R*4	6-014150	000030	12	(3,2)
ARRAY	I*2	4-000000	000642	209	(11,19)
BACAI	R*4	6-000550	005220	1352	(26,26)
BACLAB	L*1	6-016034	000032	13	(26)
BACOR	I*2	6-000360	000074	30	(30)
BALABL	L*1	6-014274	000032	13	(26)
BAPAP	I*2	6-000000	000074	30	(30)
BARANS	R*4	6-013570	000170	60	(30)
BARCON	R*4	6-024706	001000	256	(2,8,8)
BATCON	R*4	6-024506	000100	32	(2,8)
BAUMCB	I*2	6-000170	000074	30	(30)
BAVAR	R*4	6-013210	000170	60	(30)
BCVA	I*2	6-016132	002510	676	(26,26)
BCVD	I*2	6-020642	002510	676	(26,26)
BUCAI	R*4	6-005770	005220	1352	(26,26)
BUCLAB	L*1	6-014210	000032	13	(26)
BUCOR	I*2	6-000454	000074	30	(30)
BULABL	L*1	6-014242	000032	13	(26)

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FORTRAN IV-PLUS V02-01 07:39:50 14-SEP-78 PAGE 8
SALOD,FT /TR:PL2CKS/WR

[illegible]	I*2	6-000074	000074	30	(30)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	(30)
[illegible]	[illegible]	6-[illegible]	001000	256	(2,8,8)
[illegible]	[illegible]	[illegible]	[illegible]	32	(2,8)
[illegible]	I*2	6-000204	000074	30	(30)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	(30)
[illegible]	[illegible]	6-[illegible]	000010	4	(2)
[illegible]	[illegible]	[illegible]	[illegible]	4	(2)
CLASFY	[illegible]	[illegible]	[illegible]	209	(418)
[illegible]	[illegible]	[illegible]	[illegible]	209	(418)
[illegible]	[illegible]	[illegible]	000010	4	(2)
DATE	I*2	[illegible]	[illegible]	2	(2)
FILL	I*2	9-[illegible]	000110	36	(36)
[illegible]	[illegible]	[illegible]	[illegible]	13	(26)
[illegible]	[illegible]	F-[illegible]	005764	1530	(3060)
[illegible]	[illegible]	[illegible]	[illegible]	104	(209)
[illegible]	I*2	4-[illegible]	000642	209	(11,19)
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	(2,8,8)
[illegible]	[illegible]	[illegible]	[illegible]	32	(2,8)
TYPE	[illegible]	[illegible]	[illegible]	104	(209)

LABELS

LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS
1	1-000142	2	1-000120	3	1-000442	4	**	13	1-000266
22'	**	23'	**	88'	3-000014	87'	3-000026	88'	3-000120
109'	3-000000	6765'	3-000066						

FUNCTIONS AND SUBROUTINES REFERENCED

CORRO

TOTAL SPACE ALLOCATED = 032760 6904

NO FPP INSTRUCTIONS GENERATED

SALOD,LP:=SALOD

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3.2.4 SOFTWARE COMPONENT 4 (STORX)

STORX is identical to the program STORE except that the Spring Wheat Data File [200,7] DATDATA.ACA is accessed rather than a local file.

3.2.5 SOFTWARE COMPONENT 5 (CAMPLT)

CAMPLT runs in batch mode from a deck supplied by FLOCON when requested by a CAMS analyst. It accesses the spring wheat data file and creates spectral plot output which is given to the analyst.

3.2.5.1 Linkages

CAMPLT runs in batch mode. It calls FETCX and SWPLT

3.2.5.2 Interfaces

CAMPLT interfaces with FETCX through the calling sequence and through the labeled common /ANCIL/.

CAMPLT interfaces with SWPLT through the calling sequence and through the labeled commons /GRAPH/ and /PLOT/.

3.2.5.3 Inputs

CAMPLT reads the FLOCON supplied analyst deck (fig)4.

CAMPLT reads the data file [200,7] SOIL.DAT to get the estimated soil greenness value.

CAMPLT obtains spectral values for the dots from the spring wheat data file through FETCX.

3.2.5.4 Outputs

Output from CAMPLT is as follows:

1. Listing of the dots in natural order with labels, dot identification, and green number, brightness coordinates.
2. Listing of the dots in green number order with labels, dot identification, and green number, brightness coordinates.

"CAMPLT" INPUT DECK

```
GRAPH     0211 0 10247  3
DOT 1  S   12  15  42  74  92 115 124 131 141 149 162
DOT 1  A   20  59  77 103 109 148 205
DOT 1  P   44  45  82  91  95  97  98  99 108 117 125 126 130 140 158 161 167
DOT 1  P  170 173 174 175 181 182 187 189 190 193 201 206
DOT 1  C    7  18  26  29  30  32  40  53  57  63  64  65  83  90 110 112 119
DOT 1  C  122 135 136 137 143 164 165 166 179 186 194 200 208
DOT 1  X    6  14  34  35  52  60  66 120 168 197
DOT 1  V  156
DOT 1  F   84 159
DOT 1  R   58
DOT 1  Y  113 127 177
DOT 1  O    3   4  21  38  56  61  62 106 128 132 142 153 163 192 196
DOT 1  I  115 116
DOT 1  I   60
STOP
```

Figure 4

Change 1
March 8, 1979

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3. Plot of the dots in Brightness, Green number, plotting character is analyst label, or number of hits.

4. Density plot, more hits plot darker, in Brightness, Green number.

5. Listing of the 209 plotting labels in a 19 by 11 grid.

6. Identical to 1)-4) except Brightness, Green Number are replaced by OLPARS derived coordinates.

3.2.5.5 Storage

Total space allocated = 9953.

3.2.5.6 Description

CAMPLT first reads the batch input deck. From the first GRAPH card read it obtains the segment number, acquisition date, satellite identification, and a flag to user or not use previous analyst labels. From each DOT card it gets a valid plotting symbol and optionally, a listing of dots to plot with this symbol. A second GRAPH card, a STOP card, or an end of data initiates processing. A second GRAPH card sets a flag which continues processing after the first segment is processed.

In further processing, the first step is to read soil cards until a match for segment and date is found. If no match is found, the last one is used and a message typed.

Then, if previous analyst labels are to be used, they are retrieved by FETCX. These labels are used to label any dot not previously labeled by a DOT card.

Next the spectral values are retrieved from the Spring Wheat Data File by FETCX, (calibrated if satellite is Landsat 3,) and transformed to the plotting values. Unfortunately, space limitation required the destruction of these spectral values through an equivalence statement.

With all the data in the machine, the next step prints the data in natural order. Then the data is put in green number order and printed.

Now the plotting starts. First the correct potting character for each dot is defined. For the first plot only characters from Dot cards are plotted. 'N' is plotted as '.', multiple hits are plotted as numbers. For the second plot, the same dots are plotted with different characters. After these plotting characters are defined, SWPLT is called to do the actual plotting.

Then the labels are printed in grid position, OLPARS weightings are initialized and the OLPARS loop is started.

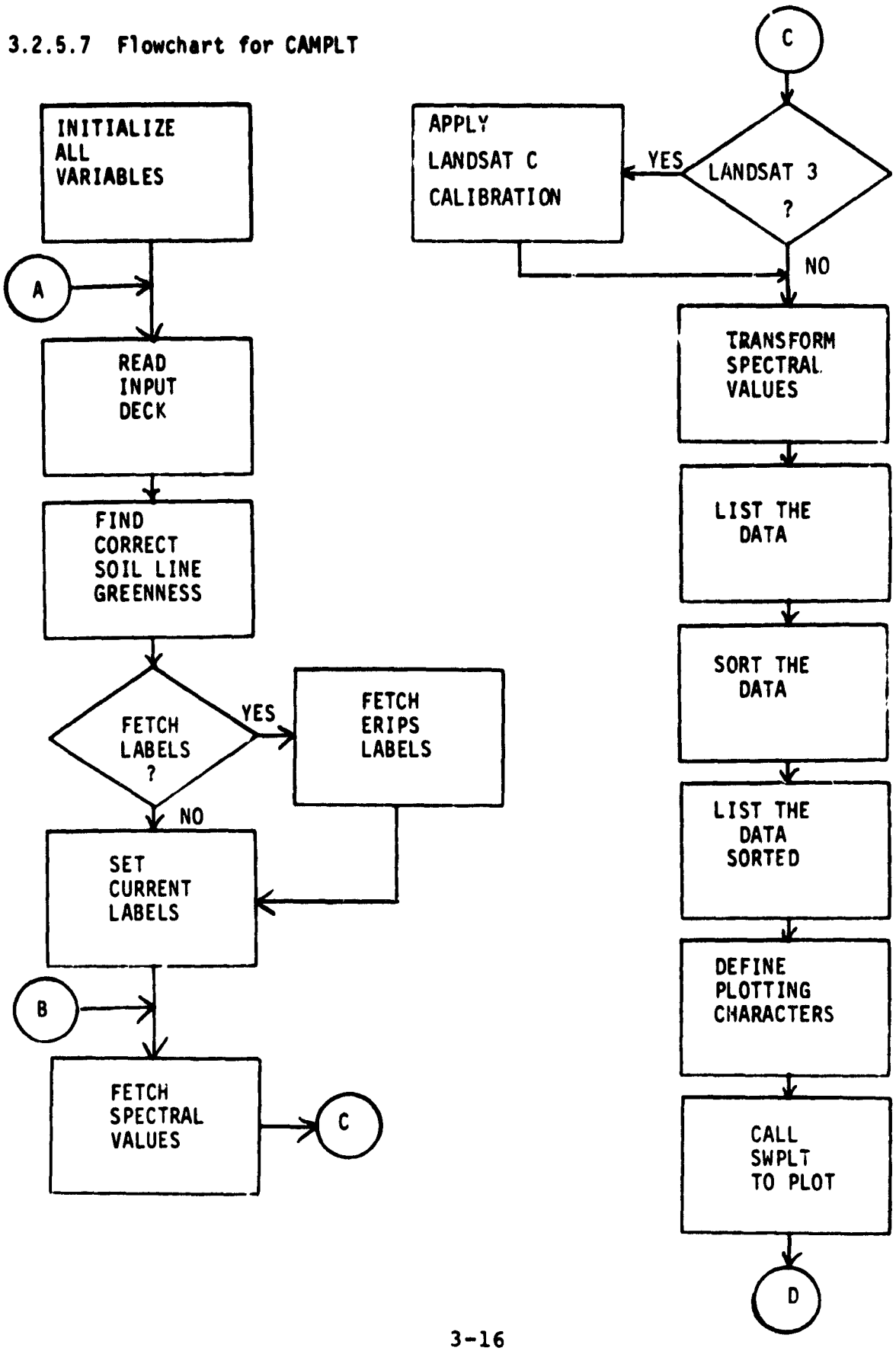
In case a second segment card initiated processing, after the OLPARS plot is made, the program loops to the beginning. Otherwise it stops.

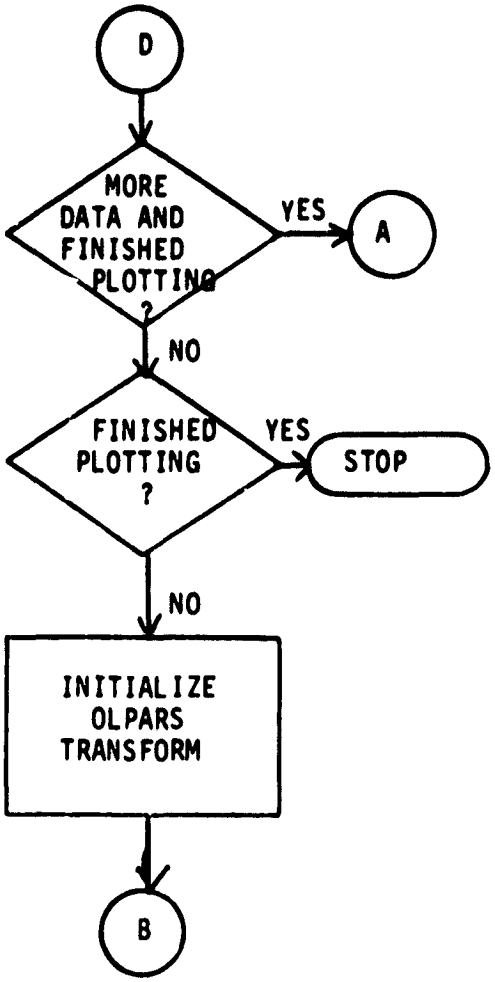
3.2.5.7 Flowchart

The Flow chart follows.

3.2.5.8 Listing

3.2.5.7 Flowchart for CAMPLT




D
MORE DATA AND FINISHED PLOTTING ?
YES
A
NO
FINISHED PLOTTING ?
YES
STOP
NO
INITIALIZE OLPARS TRANSFORM
B

1	1	1	>	16	58
2	1	2	>	19	59
3	1	3		14	57
4	1	4		21	61
5	1	5	>	6	51
6	1	6	A	16	63
7	1	7	C	11	53
8	1	8	>	15	56
9	1	9	>	8	65
10	1	10	>	36	79
11	1	11	>	7	57
12	1	12	S	16	63
13	1	13	>	15	54
14	1	14	A	26	63
15	1	15	S	15	53
16	1	16	>	28	62
17	1	17	>	34	70
18	1	18	C	21	54
19	1	19	>	10	56
20	2	1	A	13	48
21	2	2		11	61
22	2	3	>	12	66
23	2	4	>	17	60
24	2	5	>	24	66
25	2	6	>	11	53
26	2	7	T	16	57
27	2	8	>	23	66
28	2	9	>	17	68
29	2	10	C	26	66
30	2	11	C	17	47
31	2	12	C	12	61
32	2	13	C	23	67
33	2	14	>	12	61
34	2	15	A	26	64
35	2	16	X	33	66
36	2	17	>	31	73
37	2	18	>	15	62
38	2	19	C	15	50
39	3	1	>	17	60
40	3	2	C	17	61
41	3	3	>	12	57
42	3	4	S	15	63
43	3	5	>	21	57
44	3	6	P	21	59
45	3	7	P	16	56
46	3	8	>	23	57
47	3	9	>	26	67
48	3	10	>	18	57
49	3	11	>	8	68
50	3	12	>	8	58
51	3	13	>	17	65
52	3	14	V	16	58
53	3	15	C	13	59
54	3	16	>	14	53
55	3	17	>	15	48
56	3	18		41	65
57	3	19	C	22	60
58	4	1		16	58

59	4	2	A	21	55
60	4	3	I	17	57
61	4	4	E	15	56
62	4	5	P	18	65
63	4	6	C	17	57
64	4	7	C	17	56
65	4	8	>	23	69
66	4	9	C	18	44
67	4	10	X	18	52
68	4	11	>	11	55
69	4	12	>	14	54
70	4	13	>	9	58
71	4	14	>	12	55
72	4	15	>	17	64
73	4	16	>	24	59
74	4	17	S	32	72
75	4	18	>	19	63
76	4	19	>	17	61
77	5	1	A	24	68
78	5	2	>	30	69
79	5	3	>	27	61
80	5	4	>	9	57
81	5	5	>	23	64
82	5	6	P	19	63
83	5	7	C	23	64
84	5	8	F	9	57
85	5	9	>	14	52
86	5	10	X	13	44
87	5	11	>	28	52
88	5	12	>	14	59
89	5	13	>	13	51
90	5	14	C	30	64
91	5	15	P	16	64
92	5	16	S	36	70
93	5	17	>	35	69
94	5	18	>	25	57
95	5	19	>	31	73
96	6	1	P	18	61
97	6	2	P	26	74
98	6	3	P	28	60
99	6	4	P	19	54
100	6	5	>	25	70
101	6	6	>	21	59
102	6	7	>	11	54
103	6	8	A	15	67
104	6	9	>	19	69
105	6	10	>	11	52
106	6	11	P	18	56
107	6	12	>	37	79
108	6	13	P	18	49
109	6	14	A	26	66
110	6	15	C	18	58
111	6	16	>	16	55
112	6	17	C	37	75
113	6	18	V	16	55
114	6	19	>	23	62
115	7	1	I	13	45
116	7	2	I	22	62

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[illegible] 24

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	56	[illegible]	[illegible]	7	>
[illegible]	[illegible]	[illegible]	[illegible]	11	>
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	S
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	F
[illegible]	[illegible]	[illegible]	7	15	[illegible]
[illegible]	[illegible]	[illegible]	1	5	>
[illegible]	57	11	1	11	>
[illegible]	[illegible]	[illegible]	1	5	>
[illegible]	[illegible]	[illegible]	1	12	>
[illegible]	[illegible]	[illegible]	11	6	>
[illegible]	[illegible]	[illegible]	[illegible]	1	>
[illegible]	[illegible]	[illegible]	[illegible]	1	>
[illegible]	57	[illegible]	[illegible]	6	>
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	11	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	13	>
[illegible]	[illegible]	[illegible]	[illegible]	13	F
[illegible]	[illegible]	[illegible]	7	7	>
[illegible]	[illegible]	[illegible]	[illegible]	15	A
[illegible]	[illegible]	[illegible]	1	[illegible]	>
[illegible]	[illegible]	[illegible]	7	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	15	[illegible]
[illegible]	[illegible]	17	1	12	S
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	>
[illegible]	53	7	[illegible]	7	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	>
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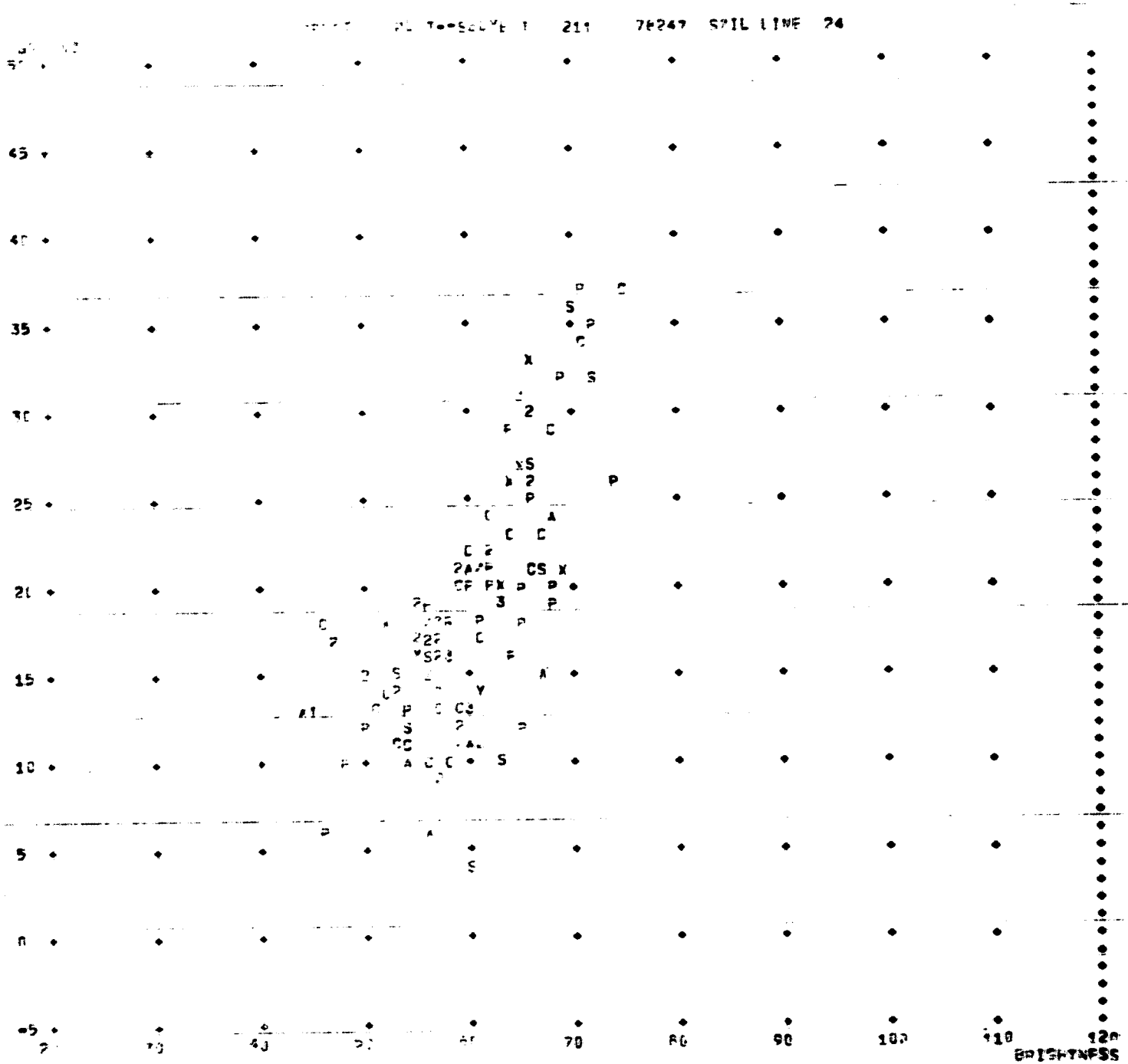

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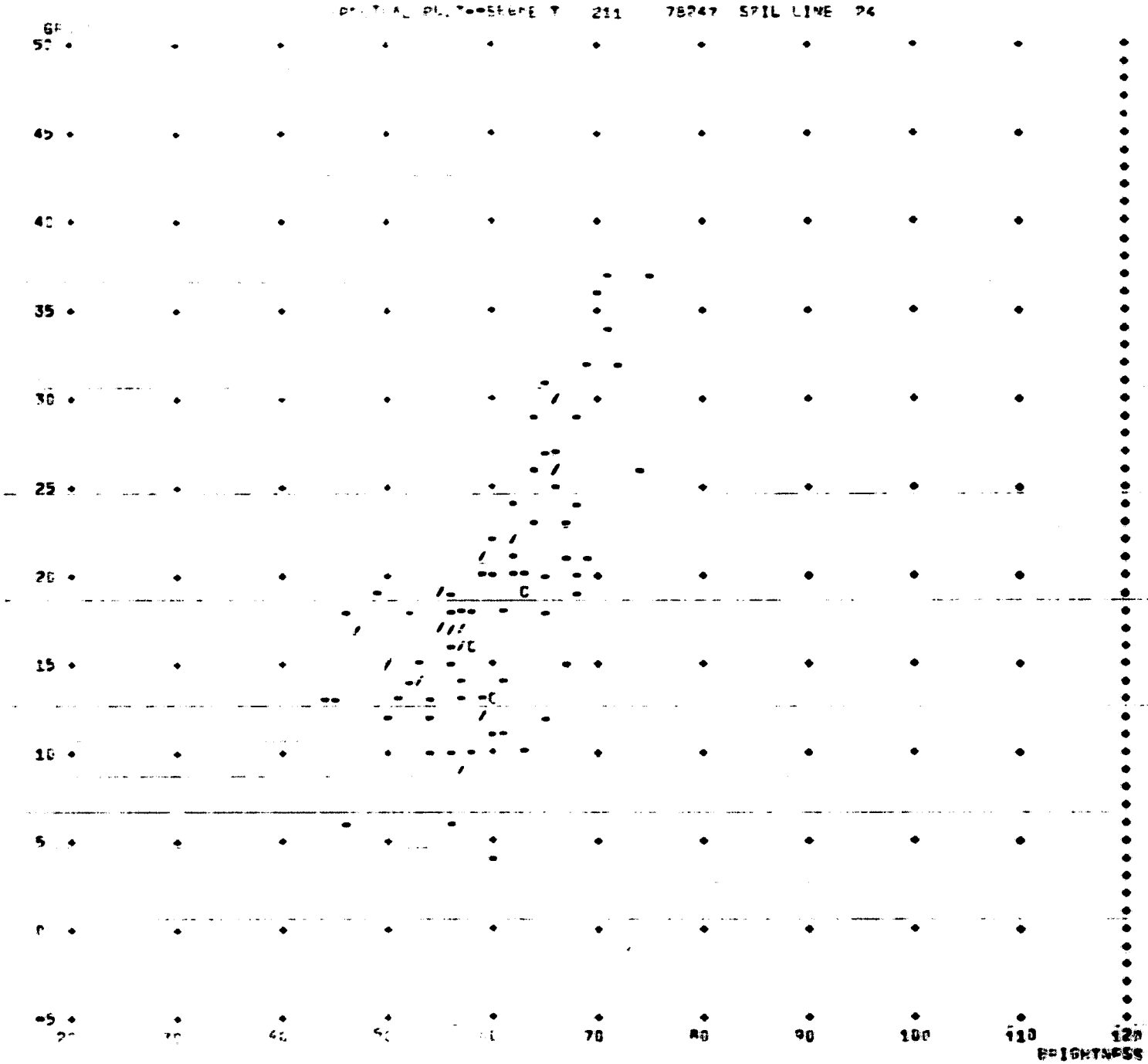

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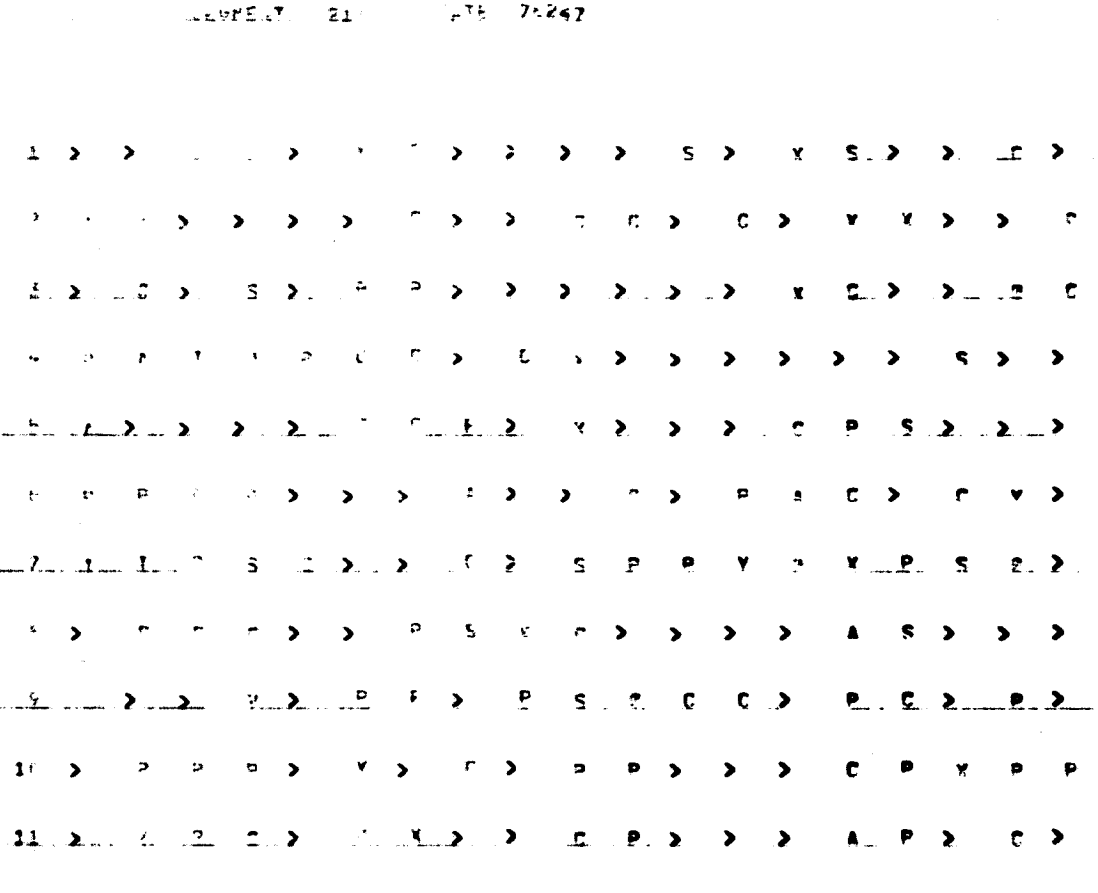

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7	1	7	C	37	45
8	1	8	>	24	49
9	1	9	>	21	58
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13	1	13	>	36	47
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15	1	15	S	40	46
16	1	16	>	34	50
17	1	17	>	27	52
18	1	18	C	37	47
19	1	19	>	32	46
20	2	1	A	25	49
21	2	2	C	26	49
22	2	3	>	22	56
23	2	4	>	31	48
24	2	5	>	26	51
25	2	6	>	36	44
26	2	7	C	34	45
27	2	8	>	26	52
28	2	9	>	31	48
29	2	10	C	26	52
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32	2	13	C	25	51
33	2	14	>	27	49
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35	2	16	X	30	49
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45	3	7	P	34	49
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SEC LIT 21 [illegible] 7 SIL LIN 24

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209 195

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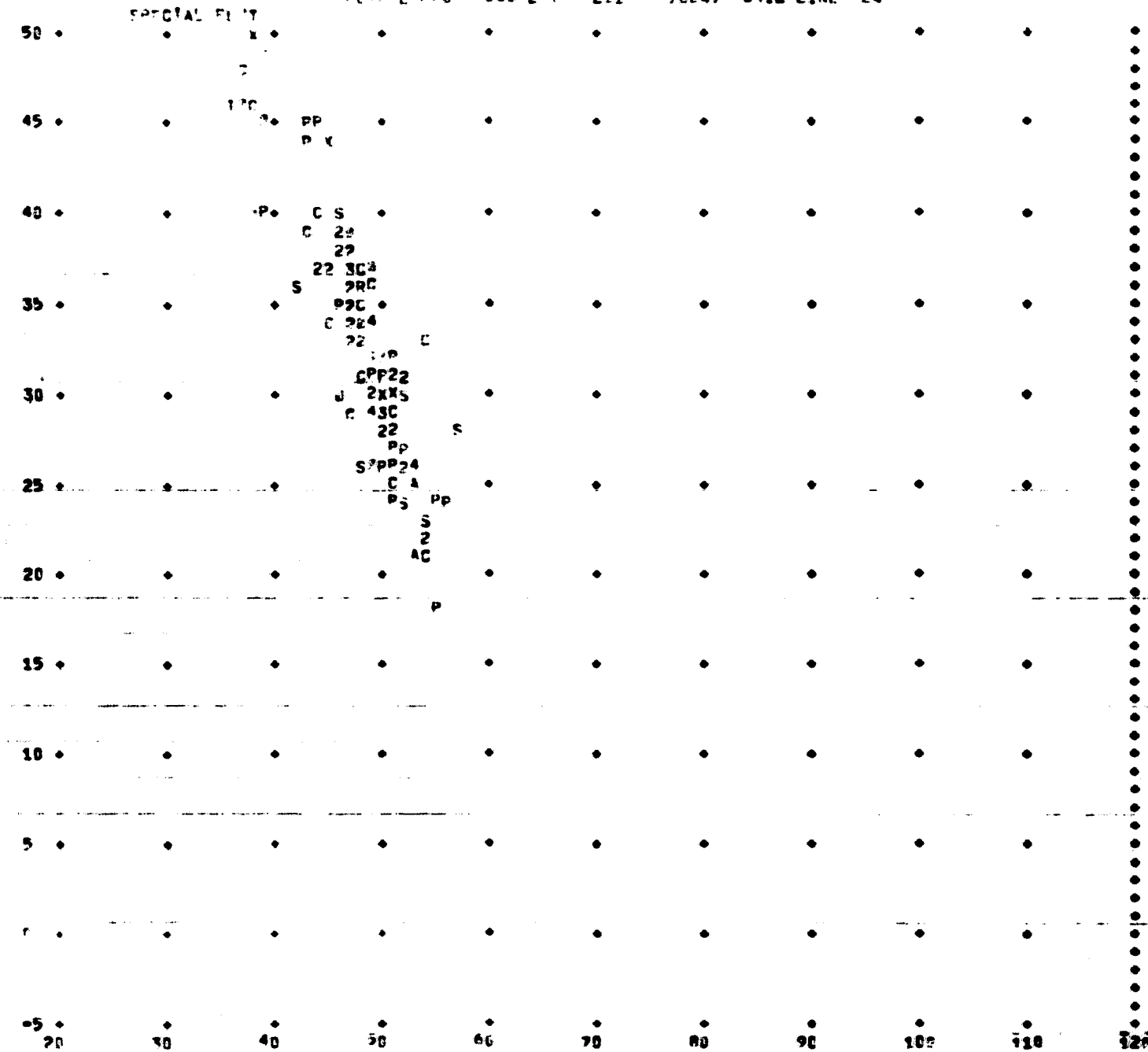
SPECTRAL PLOT--SEGMENT 211 78247 SRIL LINE 24



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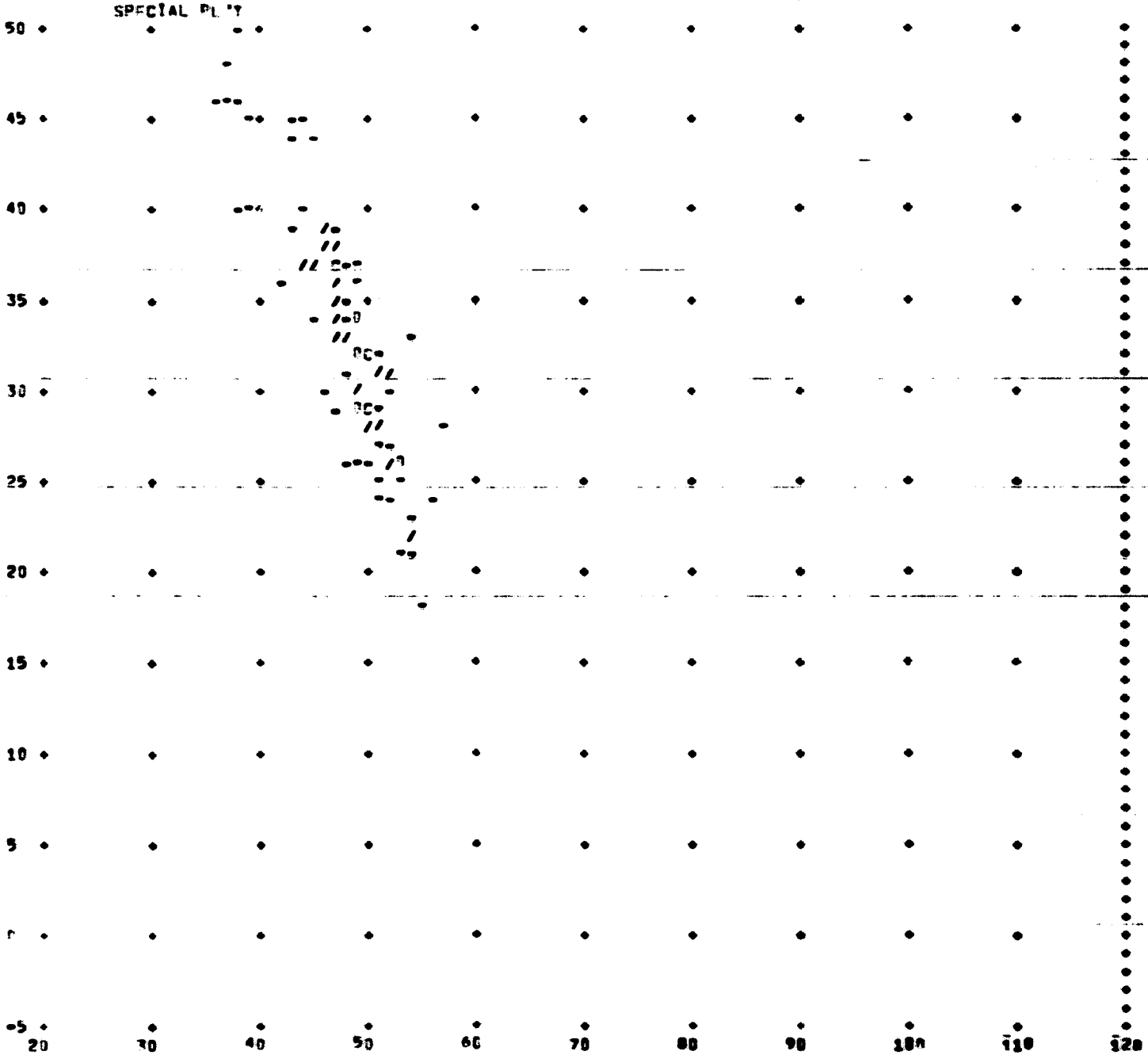
SPECTRAL PLOT--SEGMENT 211 76247 SOIL LINE 24

SPECIAL PLOT



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```
C          CAMPLT  G.A.WEHMANEN  AUGUST 1978
C      CAMPLT  CREATS SCATTER PLOTS IN TWO DIFFERENT PROJECTIONS
C      THIS PROGRAM IS MODIFIED FOR LANDSAT 3 DATA
C              FOR USE BY CAMS IN THE DIRECT WHEAT PROCEEDURES
C      INPUTS  DATA FOR CAMPLT IS STORED IN [200,7]DOTDATA.ACA
C              BY STORX AND FETCHED BY FETCX. STORX IS CALLED BY
C              DOTLOB FOR SPECTRAL DATA FROM SPECTRAL UNLOAD TAPES
C              SWLOD FOR ANALIST LABELS FROM CCIT'S
C              THIS IS CALLED THE SPRING WHEAT DATA FILE
C              THE FILE [200,7]SOIL.DAT IS USED FOR SOIL LINE DATA
C              SOIL.DAT ALSO CONTAINS SUN ANGEL AND GIN DATA
C              SOIL.DAT IS SOMETIMES CALLED A GIN FILE
C              GIN CARDS FOR SOIL.DAT ARE PRESENTLY GENERATED ON LARS
C              THE BATCH DECK SUBMITTED BY THE ANALIST THRU FLOCON
C              CONTAINS DOT LABEL INFORMATION
C              THE SUBMITTED DATA OVERRIDES DATA FROM CCIT'S
C         THE PROGRAMS IN THIS 'SYSTEM' ARE CUT BASED ON PREEXISTING
C         PROGRAMS. THEREFOR THERE MAY BE MEANINGLESS CODE AND
C         OBSCURE LOGIC IN SOME PLACES. THERE ARE SEVERAL EXTRA
C         FORMAT STATEMENTS.
      IMPLICIT INTEGER*2 (A-L)
      IMPLICIT REAL (M-Z)
      INTEGER*2 DB,STATUS,SYM,NSEG,M
       INTEGER*4 SAT
          INTEGER *4  SEG,DTF(6),THU,GIN,IOD
      INTEGER*4 IPX(210),IPY(210),TEST(6),IIN(6),ATST
        REAL CONV,CONX
        REAL CSX(16),CSY(16)
        BYTE PLUS,BLANK,DASH,CHAR(11),MAP(101,61)
        REAL*4 PLTX(209),PLTY(209)
          BYTE CAR(209),DAR(209)
      DIMENSION CH1(209),CH2(209),CH3(209),CH4(209)
      DIMENSION IGM(8),GTMAP(11,19)
        BYTE GMAP(19,11),Q,GTP(2,11,19),LBL(40),NUM(11)
        BYTE  PTC(209),CLBL(210),FMAP(19,11)
      BYTE ISY(6),GT(2,209),NAME1(8),NAME2(8),CHAN(16)
        BYTE DOTLET(2,209),CC,DLBL(210),INA(71),IN(71)
        INTEGER INDEX(209),TAB(210),OUTNO(209)
      EQUIVALENCE (GT(1,1),GTMAP(1,1),GTP(1,1,1))
      EQUIVALENCE(CAR(1),CH1(1)),(DAR(1),CH2(1))
      EQUIVALENCE (DLBL(1),GMAP(1,1)),(CLBL(1),FMAP(1,1))
       COMMON /GRAPH/ SEG,DRAT(2)    ;DATA FOR SWPLT
      EQUIVALENCE (DLBL(210),Q)
      COMMON /ANCIL/CODE,DATE(2),STATUS,FILL(36)  ;FOR FETCX
      COMMON /PLOT/ PLTX,PLTY   ;PLOTTING COORDINATES TO SWPLT
      DATA ISY/'W','B','R','A','F','S'/,Q/' '/
       DATA GMAP/209*' '/
      DATA CHAR/'0','0','0','0','0','0','0','C','/','-',' '/ ;DENSITY PLOT
        DATA NUM/'8','9','8','7','6','5','4','3','2','1',' '/
        DATA  DTE/600/, THU/1000/
        DATA  R1/.332/,R2/.603/,R3/.676/,R4/.263/ ;BRIGHTNESS WEIGHTINGS
        DATA  S1/-.283/,S2/-.66/,S3/.577/,S4/.388/  ;GREENNESS WEIGHTINGS
      DATA TEST/'GRAP','TYPE','STAR','OUT ',' GIN','STOP'/
        DATA PLUS,DASH/'+','.'/
      DATA BLANK/' '/
        DATA LBL/40*' '/
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      C       CALL ASSIGN(1,'SY:CMD.DAT',10)  !FOR INTERACTIVE DEBUG  FLOCON CARDS
                FLAG=0
        919     DTE(4)=12
                R1=.332  !BRIGHTNESS WEIGHTINGS
                R2=.603
                R3=.676
                R4=.263
                R5=.0
                S1=-.283  !GREENNESS WEIGHTINGS
                S2=-.66
                S3=.577
                S4=.398
                S5=18
                S6=1
                    GAG=0
              HIGHX=120
                    ITER=0
              LOWX=20
              HIGHY=50
              LOWY=-5
               KK=1
                  NGN=0
        10          CONTINUE
                DO 19 J=1,209
                    GT(1,J)=BLANK
                    GT(2,J)=BLANK
                PLTX(J)=0.
                PLTY(J)=0.
                 DLBL(J)=BLANK
        19      CONTINUE
      C     ANALIST INPUT DECK FROM FLOCON
                IF(FLAG .EQ. 2) GO TO 402  !A GRAPH CARD IS IN INA
        1     CONTINUE
        2     READ(1,900,END=454)ATST,AL,(INA(K),K=1,71)
        900   FORMAT(A4,3X,A1,1X,71A1)
                IF(ATST .EQ. TEST(6)) GO TO 454  !GAG IS 1, PLOT AND STOP
      D           WRITE(6,620)ATST,AL,INA
      620         FORMAT('  ',A4,A4,1X,71A1)
              IF(ATST .EQ. TEST(1)) GO TO 401  !GRAPH CARD
              IF(ATST .EQ. TEST(4)) GO TO 404  ! DOT CARD
              GO TO 1
      C                 GRAPH CARD INPUT
        402           FLAG=0
                      WRITE(6,1004)     !BLANK PAGE
        401         IF (FLAG .EQ. 1)FLAG=2  !THERE IS MORE DATA, PLOT AND LOOP
                    IF(FLAG .EQ. 2) GO TO 454  !GO PLOT
        4401    DECODE(15,2020,INA) SEG,CC,DTE(1),DTE(2),SAT
      C    CC='C' MEANS COMPLETE UPDATE. DONT USE CCIT LABELS
                FLAG=1
      2020    FORMAT(I4,A2,I3,I3,I3)
      2019     FORMAT('  ',I5,A2,I3,I3)
      D         WRITE(6,2019)SEG,CC,DTE(1),DTE(2)
        621       FORMAT('  ',A6,3X,4I1)
              GO TO 1
      C                 DOT CARD INPUT
        404   DECODE(71,2021,INA) IN
```

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```
0086    2021   FORMAT(71I1)
        D       WRITE(6,622) ATST,IN
0087    622     FORMAT('  ',A6,2X,71I1)
0088           IX=0
0089            LBL(KK)=AL
0090            KK=KK+1
0091            IF(KK .GT. 40)KK=40
0092           DO 4041 I=1,71
0093           IF(INA(I) .NE. ' ') IX=10*IX+IN(I)
0094           IF(INA(I) .EQ. ' ' .AND. IX .NE. 0) DLBL(IX)=AL
0095    4041   IF(INA(I) .EQ. ' ') IX = 0
0096           GO TO 1
0097    4005   FORMAT('  DECK PROBLEM  GIN CARD SEG =',I5,'  SEG CARD SEG =',I5)
0098    454         CONTINUE
0099            OPEN(UNIT=2,NAME='[200,7]SOIL.DAT',TYPE='OLD',
              C  ACCESS='SEQUENTIAL')
0100    444         CONTINUE
        C     SOIL LINE INPUT   EACH INPUT CARD STARTS 'GIN'
        C     THIS DATA IS PERIODICALY UPDATED WITH CARDS FROM LARS
        C     THE CARDS ARE GENERATED BY O.A.M. USING GIN CARDS
        C     FROM ERIPS PROCESSED BY PROGRAMS ON JSC808
0101           READ(2,4441,ERR=444,END=445) GIN,IIN
        D       WRITE(6,4441) GIN,IIN
0102    4441 FORMAT(A4,6X,I4,I2,4I3)
0103           IF(GIN .NE. TEST(5))GO TO 444
0104           IF(IIN(1) .NE. SEG) GO TO 444
0105           IF(IIN(5) .NE. DTE(1)) GO TO 444
0106           IF(IIN(6) .NE. DTE(2)) GO TO 444
0107    4442     FORMAT('     GOOD UNF')
0108     445 CONTINUE
0109            REWIND 2
0110              KK=KK-1
0111           CLOSE(UNIT=2)
0112             IF(IIN(1) .NE. SEG)WRITE(6,4005) IIN(1),SEG
0113           DTE(4)=IIN(3)  !THIS IS THE SOIL GREENNESS ESTIMATED BY ERIPS
        D       WRITE(6,625) IIN(1),SEG,(DTE(JK),JK=1,4),(LBL(IK),IK=1,15)
0114             IF(SEG .EQ. 0) STOP
0115    625        FORMAT('     444    ',2I6,4I6,15A4)
0116     628     DATE(1)=78
0117           DATE(2)=000  !THIS IS THE 'DATE' USED BY S=LDD
0118           IF(CC .EQ. ' ')CALL FETCX(SEG,GTMAP,'S=DAFI')
        C    CC='C'  COMPLETE UPDATE      OTHERWISE CC=' '
        D          IF(CC .EQ. ' ') WRITE(6,640)  STATUS
0119             IF(STATUS .NE. 0)WRITE(6,440)
0120             STATUS=0
0121     640         FORMAT('   FETCH LABELS',I4)
0122            DO 448 I=1,19  !HERE WE OVERRIDE FETCHED LABELS WITH
0123            DO 448 J=1,11  !THE LABELS SPECIFIED ON DOT CARDS
0124               IF(GMAP(I,J) .EQ. BLANK)FMAP(I,J)='>'
0125            IF(GMAP(I,J) .EQ. BLANK) GMAP(I,J)=GTP(2,J,I)
0126             IF(GMAP(I,J) .EQ. 0) GMAP(I,J)=GTP(1,J,I)
0127            IF(GMAP(I,J) .EQ. 0)  GMAP(I,J)='0'
0128             IF(FMAP(I,J).EQ.0) FMAP(I,J)=' '
0129     448      CONTINUE
0130     918     CONTINUE  !THIS IS THE START OF THE PLOTTING LOOP
0131     630      DATE(1)=DTE(1)
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```
0132              DATE(2)=DTE(2)
0133              DRAT(1)=DTE(1)
0134              DRAT(2)=DTE(2)
0135      629  CALL FETCX(SEG,CH1,'SWCH1*')  !GET SPECTRAL DATA
0136           IF(STATUS.EQ.1)WRITE(6,446)
0137      446      FORMAT('        FETCH ERROR')
0138           CALL FETCX(SEG,CH2,'SWCH2*')
0139           IF(STATUS.EQ.1)WRITE(6,446)
0140           CALL FETCX(SEG,CH3,'SWCH3*')
0141           IF(STATUS.EQ.1)WRITE(6,446)
0142           CALL FETCX(SEG,CH4,'SWCH4*')
0143           IF(STATUS.EQ.1)WRITE(6,446)
        D      WRITE(6,6)GTMAP
0144       6      FORMAT('        ',I144)
0145                  IOD=DTE(1)*TWO+DTE(2)
        D       WRITE(6,7) CH1,CH2,CH3,CH4
0146       7      FORMAT('    ',I1I4)
0147              IF(SAT.NE.3) GO TO 100
        C                          LANDSAT 3 CALIBRATION
0148              DO 576 K=1,209
0149              CH1(K)=.5+1.161*CH1(K)
0150              CH2(K)=.5+1.230*CH2(K)
0151              CH3(K)=.5+1.240*CH3(K)
0152              CH4(K)=1.062*CH4(K)+.5
0153      576     CONTINUE
0154      100 CONTINUE
0155                K=209
0156            DO 125 J=1,K
0157              IPIX=(J-1)/11+1  !CHANGE (11,19) TO (19,11)
0158             JROW=J-(IPIX-1)*11  !THIS CHANGE IS NOT NEEDED
0159             JJ=IPIX+(JROW-1)*19  !SINCE DOYLOB LOADS IN NATURAL ORDER
0160            PLTX(J)=R5+R1*CH1(J)+R2*CH2(J)+R3*CH3(J)+R4*CH4(J)
        C          THIS IS THE X AXIS FOR PLOTTING (BRIGHTNESS)
0161            PLTY(J)=S5+S1*CH1(J)+S2*CH2(J)+S3*CH3(J)+S4*CH4(J)-S6*DTE(4)
        C          THIS IS THE Y AXIS FOR PLOTTING (GREENNESS)
0162            IPX(J)=PLTX(J)+0.5   !ROUND AND TRUNCATE
0163            IPY(J)=PLTY(J)+0.5
        D        WRITE(6,616) J,JJ,JROW,IPIX,PLTX(JJ),PLTY(JJ),CH1(J)
0164      616      FORMAT('  ',4I5,2F6.2,I4)
0165      125   CONTINUE
        C  OUTPUT INFO BY DOYNUMBER ORDER   2COL  2 PAGES
0166      1000  FORMAT(1H1,50X,'SEGMENT NUMBER ',I4,10X,I3)
0167            WRITE(6,1201) SEG,IOD,DTE(4),LBL,SAT
0168      1201  FORMAT(1'        SEGMENT',I6,'   DATE ',I6,9X,'SOIL LINE',I4,/
            C          '      ','     PLOT LABELS ',40A2,10X,I3)
0169      1202 FORMAT(19X,'DOT NO',1X,'LINE',1X,'PIX',1X,'LBL',1X,'GRN NO',1X,
            C'BRT',15X,'DOT NO',1X,'LINE',1X,'PIX',1X,'LBL',1X,'GRN NO',1X,
            C 'BRT')
0170              IF(GAG .EQ. 0) WRITE(6,1202)
0171      1203  FORMAT(19X,'DOT NO',1X,'LINE',1X,'PIX',1X,'LBL',1X,'    Y  ',
            C '  X ',14X,'DOT NO LINE PIX LBL     Y     X')
0172            IF(GAG.EQ.1)WRITE(6,1203)
0173              DO 978 I1=1,58
0174                  I2=I1+58
0175                  L1=(I1-1)/19+1
0176                  L2=(I2-1)/19+1
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                J1=I1-(L1-1)*10
                J2=I2-(L2-1)*10
            WRITE(6,1003) I1,L1,J1,CLBL(I1),DLBL(I1),IPY(I1),IPX(I1),
     C                    I2,L2,J2,CLBL(I2),DLBL(I2),IPY(I2),IPX(I2)
  974       CONTINUE
            WRITE(6,1004)
 1004       FORMAT('1')
            DO 975 I3=117,163
                I4=I3+47
                L3=(I3-1)/10+1
                L4=(I4-1)/10+1
                J3=I3-(L3-1)*10
                J4=I4-(L4-1)*10
            WRITE(6,1003) I3,L3,J3,CLBL(I3),DLBL(I3),IPY(I3),IPX(I3),
     C                    I4,L4,J4,CLBL(I4),DLBL(I4),IPY(I4),IPX(I4)
  975       CONTINUE
 1003       FORMAT(I3,I6,I4,2X,2A1,I6,I5,I10,I6,I4,2X,2A1,I6,I5)
  200       CONTINUE
            WRITE(6,1204) SEG,IOD,DTE(4)
 1204       FORMAT('1      SEGMENT',I6,'    DATE',I7,' SOIL LINE ',I4,/)
 1205       FORMAT(15X,'GREEN NO BRT DOTNO LINE PIX LBL'
     C ,15X,'GREEN NO',1X,'BRT',1X,'DOT NO',1X,'LINE',1X,'PIX',1X,'LBL')
            IF(GAG.EQ.0)WRITE(6,1205)
 1206       FORMAT(15X,'      Y     X  DOTNO LINE PIX LBL',
     C          16X,'      Y     X  DOTNO LINE PIX LBL')
            IF(GAG .EQ. 1)WRITE(6,1206)
C NOW SORT BY IPY ORDER   SECONDARY SORT ON IPX
            DO 210 I=1,210
  210       TAB(I)=I
            ITER=0
  888       I=1
            LARK=0  !CHANGE FLAG
  211       CONTINUE
             IF( ITER .GE. 209) GO TO 250  !ITERATION LIMITER
             IF(IPY(TAB(I)) .LT. IPY(TAB(I+1))) GO TO 220
             IF(IPY(TAB(I)) .EQ. IPY(TAB(I+1))) GO TO 221
  223       ITAB=TAB(I)  !SWAP PLACES
            TAB(I)=TAB(I+1)
            TAB(I+1)=ITAB
            LARK=1  !FLAG ONE SWAP
                GO TO 220
  221       IF(IPX(TAB(I)) .GT.IPX(TAB(I+1))) GO TO 223
  220       I=I+1
            IF(I .LT. 209) GO TO 211
              ITER=ITER+1  !ITERATION COUNTER
            IF(LARK .EQ. 0)GO TO 250
              LARK=0
               I=1
            GO TO 211
  250          CONTINUE  !THUS ENDETH THE SORT
               DO 212 I1=1,50
                 I5=TAB(I1)
                 I6=TAB(I1+50)
                 L5=(I5-1)/10+1
                 L6=(I6-1)/10+1
                 J5=I5-(L5-1)*10
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                J6=I6-(L6-1)*19
            WRITE(6,1005) IPY(I5),IPX(I5),I5,L5,J5,CLBL(I5),DLBL(I5),
     C                    IPY(I6),IPX(I6),I6,L6,J6,CLBL(I6),DLBL(I6)
  212       CONTINUE
C           NOW WRITE PAGE 2 OF THE SORTED LISTING
            WRITE(6,1006)
              DO 213 I1=117,163
                I7=TAB(I1)
                I8=TAB(I1+47)
                L7=(I7-1)/19+1
                L8=(I8-1)/19+1
                J7=I7-(L7-1)*19
                J8=I8-(L8-1)*19
            WRITE(6,1005) IPY(I7),IPX(I7),I7,L7,J7,CLBL(I7),DLBL(I7),
     C                    IPY(I8),IPX(I8),I8,L8,J8,CLBL(I8),DLBL(I8)
  213       CONTINUE
          WRITE(6,1006) K,ITER
 1005       FORMAT(I21,I6,I5,I5,I6,1X,2A1,I22,I6,I5,I5,I6,1X,2A1)
C  DEFINE GRAPHING CHARACTERS FOR ALL DOTS
C  CAR IS THE ARRAY OF ANALIST LABELS
C  DAR IS THE DENSITY PLOT DERIVED FRAM CAR
 1006     FORMAT('          K=',2I6)
          DO 300 I=1,101
          DO 300 J=1,61
          MAP(I,J)=BLANK
  300       CONTINUE
          DO 302 I=1,K
          CAR(I)=BLANK
          DAR(I)=BLANK
          IX=IPX(I)
          IY=IPY(I)
          IF(IX.GT.HIGHX) IX=HIGHX
          IF(IY.LT.LOWY) IX=LOWX
          IF(IY.GT.HIGHY) IY=HIGHY
          IF(IY.LT.LOWY) IY=LOWY
          IY=IY-LOWY
          IX=IX-LOWX
          IF(DLBL(I) .EQ. 'B' .AND. KK .EQ. 0)GO TO 313
C   IF NO DOT CARDS  PLOT ALL 'S'S AND 'S'S
          IF(DLBL(I) .EQ. 'S' .AND. KK .EQ. 0)GO TO 313
          DO 312 L=1,KK
  312     IF(DLBL(I) .EQ. LBL(L)) GO TO 313  !COMPAIR LABELS TO DOT CARD LABELS
          GO TO 3302
  313     CONTINUE  !WE HAVE A GOOD LABEL TO PLOT
           DAR(I)=CHAR(10)
          DO 325 KZ=2,9
  325     IF(MAP(IX,IY) .EQ. NUM(KZ)) MAP(IX,IY)=NUM(KZ-1)
          IF(MAP(IX,IY).GT.'9'.AND.MAP(IX,IY).NE.'*')MAP(IX,IY)=NUM(9)
          IF(MAP(IX,IY) .EQ. '.')MAP(IX,IY)=NUM(9)
          IF(MAP(IX,IY) .EQ. BLANK) MAP(IX,IY)=DLBL(I)
          IF(MAP(IX,IY) .EQ. 'N')MAP(IX,IY)='.'
 3302      CAR(I)=MAP(IX,IY)
           IF(CAR(I) .EQ. 0) CAR(I)='0' 10 PLOTS AS A SPACE DELETION DESTROYING SCALE
            DO 314 KL=1,9
            IF(CAR(I) .EQ. NUM(KL))DAR(I)=CHAR(KL)
  314       CONTINUE  !CH1 AND CH2 WERE DESTROYED BY COMMON TO SAVE SPACE
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0277      302          CONTINUE
          C            WRITE(6,330) ((I,CAR(I),DAR(I)),I=1,209)
0278      339          FORMAT(:8(I4,A1,A1))
0279                 WRITE(6,9) SEG,IOD,DTE(4)
0280      9          FORMAT('1',20X,'SPECTRAL PLOT--SEGMENT ',I5,I9,'  SOIL LINE',I6)
0281                 IF(GAG .EQ. 1) WRITE(6,3040)
0282                 IF(GAG .EQ. 0)WRITE(6,3042)
0283                      CALL SMPLT(CAR)  !THIS PLOTS CAR IN THE CORRECT FORMAT
0284                   IF(GAG .EQ. 0) WRITE(6,3043)
0285                      WRITE(6,9)SEG,IOD,DTE(5)
0286                   IF(GAG .EQ. 0) WRITE(6,3042)
0287                     IF(GAG.EQ.1)WRITE(6,3040)
0288                      CALL SMPLT(DAR)
0289                     IF(GAG .EQ. 0)WRITE(6,3045)
0290                  IF(GAG.EQ.1)GO TO 3041
0291      3042         FORMAT('  CAN NOT')
0292      3043         FORMAT(' ',95X,'BRIGHTNESS')
0293                  WRITE(6,3031) SEG,IOD
0294      3040   FORMAT('              SPECIAL PLOT')
0295      3031         FORMAT(/////,20X,' SEGMENT',I6,'      DATE',I7,////)
0296                   WRITE(6,3034)  !OUT LABEL GRID OUTPUT (J,J=1,19)
0297      3034         FORMAT(10X,19(2X,I2),//)
0298                   DO 3033  K=1,11
0299                   II=19*(K-1)+1
0300                   III=II+18
0301      3033         WRITE(6,3030) K,((CLBL(I),OLBL(I)),I=II,III)
0302      3041       IF(FLAG .EQ.2.AND. GAG .EQ. 1) GO TO 910
0303                   IF(GAG .EQ.1) STOP
0304                 GAG=1  !HERE THE OLPARS PROJECTION IS INITIALIZED
0305                 P1=1.856
0306                 P2=.0865
0307                 P3=.154
0308                 P4=.31
0309                 P5=0
0310                 S1=.135
0311                 S2=-1.296
0312                 S3=-.737
0313                 S4=.0910
0314                 S5=87.5
0315                 S6=0.
0316                 GO TO 910
0317      3030   FORMAT('      ',I5,19(2X,2A1),///)
0318       3       STOP
0319               END
```

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PROGRAM SECTIONS

NUMBER	NAME	SIZE		ATTRIBUTES
1	$CODE1	010152	2101	RW,I,CON,LCL
2	$PDATA	000210	68	RW,D,CON,LCL
3	$IDATA	001630	463	RW,D,CON,LCL
4	$VARS	031114	6438	RW,D,CON,LCL
5	$TEMPS	000006	3	RW,D,CON,LCL
6	GRAPH	000010	4	RW,D,OVR,GBL
7	ANCIL	000120	40	RW,D,OVR,GBL
8	PLOT	003210	836	RW,D,OVR,GBL

VARIABLES

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
AL	I*2	4-030776	ATST	I*4	4-006572	BLANK	L*1	4-007007	CC	L*1	4-020100	COUE	I*2	7-000000
CONX	R*4	4-006602	CONY	R*4	4-006576	DASH	L*1	4-007010	DB	I*2	4-003212	FLAG	I*2	4-030730
GAG	I*2	4-030754	GIN	I*4	4-003202	HIGHX	I*2	4-030750	HIGHY	I*2	4-030764	I	I*2	4-031004
II	I*2	4-031110	III	I*2	4-031112	IOD	I*4	4-003206	IPIX	I*2	4-031000	ITAB	I*2	4-031040
ITER	I*2	4-030760	IX	I*2	4-031002	IY	I*2	4-031100	I1	I*2	4-031014	I2	I*2	4-031016
I3	I*2	4-031030	I4	I*2	4-031032	I5	I*2	4-031050	I6	I*2	4-031052	I7	I*2	4-031064
I8	I*2	4-031066	J	I*2	4-030774	JJ	I*2	4-031012	JROW	I*2	4-031018	J1	I*2	4-031020
J2	I*2	4-031026	J3	I*2	4-031040	J4	I*2	4-031042	J5	I*2	4-031060	J6	I*2	4-031062
J7	I*2	4-031074	J8	I*2	4-031076	K	I*2	4-031000	KGN	I*2	4-030772	KK	I*2	4-030770
KL	I*2	4-031106	K7	I*2	4-031104	L	I*2	4-031102	LARK	I*2	4-031004	LOOK	I*2	4-030762
LOWY	I*2	4-030766	L1	I*2	4-031020	L2	I*2	4-031022	L3	I*2	4-031034	L4	I*2	4-031036
L5	I*2	4-031054	L6	I*2	4-031056	L7	I*2	4-031070	L8	I*2	4-031072	M	I*2	4-003220
NSEG	I*2	4-003216	PLUS	L*1	4-007000	Q	L*1	4-000321	R1	R*4	4-030676	R2	R*4	4-030702
R3	R*4	4-030706	R4	R*4	4-030712	R5	R*4	4-030740	SAT	I*4	4-003222	SEG	I*4	6-000000
STATUS	I*2	7-000006	SYM	I*2	4-003214	S1	R*4	4-030710	S2	R*4	4-030722	S3	R*4	4-030726
S4	R*4	4-030732	S5	R*4	4-030744	S6	R*4	4-030750	TWO	I*4	4-003250			

ARRAYS

NAME	TYPE	ADDRESS	SIZE		DIMENSIONS
CAR	L*1	4-001506	000321	104	(209)
CHAN	L*1	4-025224	000020	8	(16)
CHAR	L*1	4-007011	000015	5	(11)
CH1	I*2	4-001506	000642	209	(209)
CH2	I*2	4-000644	000642	209	(209)
CH3	I*2	4-023046	000642	209	(209)
CH4	I*2	4-023710	000642	209	(209)
CLBL	L*1	4-000322	000322	105	(210)
CSX	R*4	4-000606	000100	32	(16)
CSY	R*4	4-006706	000100	32	(16)
DAR	L*1	4-000644	000321	104	(209)
DATE	I*2	7-000002	000004	2	(2)
DLBL	L*1	4-000000	000322	105	(210)
DOTLET	L*1	4-025244	000642	209	(2,209)
DOTNO	I*2	4-030034	000642	209	(209)
DRAT	I*2	6-000004	000004	2	(2)

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DTE	I*4	4-003226	000030	12	(6)
FILL	I*2	7-000010	000110	36	(36)
FMAP	L*1	4-000322	000321	104	(19,11)
GMAP	L*1	4-000000	000321	104	(19,11)
GT	L*1	4-002350	000002	209	(2,209)
GTMAP	I*2	4-002350	000002	209	(11,19)
GTP	L*1	4-002350	000002	209	(2,11,19)
IGP	I*2	4-024552	000020	8	(8)
IIN	I*4	4-006502	000030	12	(6)
IN	L*1	4-026216	000107	35	(71)
INA	L*1	4-026107	000107	35	(71)
INDEX	I*2	4-026326	000002	209	(209)
IPX	I*4	4-003272	001510	420	(210)
IPY	I*4	4-005002	001510	420	(210)
ISV	L*1	4-025176	000006	3	(6)
LBL	L*1	4-024572	000050	20	(40)
MAP	L*1	4-007024	014091	3080	(101,81)
NAME1	L*1	4-025204	000010	4	(8)
NAME2	L*1	4-025214	000010	4	(8)
NUM	L*1	4-024602	000013	5	(11)
PLTX	R*4	8-000000	001504	418	(209)
PLTY	R*4	8-001504	001504	418	(209)
PTC	L*1	4-024655	000321	104	(209)
TAB	I*2	4-027170	000684	210	(210)
TEST	I*4	4-006512	000030	12	(6)

LABELS

LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS
1	1-000366	2	**	3	**	8'	**	7'	**
9'	3-001212	10	**	19	**	180	1-002514	129	**
200	**	210	**	211	1-004594	212	**	213	**
220	1-005014	221	1-004732	223	1-004604	250	1-005004	300	**
302	**	312	**	313	1-006600	314	**	329	**
339'	**	401	1-000626	402	1-000574	404	1-000700	444	1-001222
485	1-001400	446'	3-000140	448	**	454	1-001204	576	**
616'	**	620'	**	621'	**	622'	**	629'	**
628	**	629	**	630	**	640'	**	800	**
900'	3-000000	918	1-002042	919	1-000052	974	**	975	**
1000'	**	1003'	3-000562	1004'	3-000556	1005'	3-001132	1006'	3-001170
1201'	3-000166	1202'	3-000306	1203'	3-000440	1204'	3-000622	1205'	3-000700
1206'	3-001022	2010'	**	2020'	3-000014	2021'	3-000030	3030'	3-001450
3031'	3-001368	3032	**	3034'	3-001432	3040'	3-001332	3041	1-007700
3042'	3-001274	3043'	3-001310	3302	1-007000	4005'	3-000034	4041	**
4401	**	4441'	3-000124	4442'	**				

FUNCTIONS AND SUBROUTINES REFERENCED

CLOSS FETCH OPENS SWPIT

TOTAL SPACE ALLOCATED = 066702 9953

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3.2.6 SOFTWARE COMPONENT 6 (SWPLT)

The program from which CAMPLT grew had the wrong format for the plots. SWPLT was added to do the plotting in the correct format. There are many unused statements in SWPLT.

3.2.6.1 Linkages

SWPLT is called by CAMPLT after the plotting characters are defined.

3.2.6.2 Interfaces

SWPLT interfaces with CAMPLT through the calling sequence and the labeled commons /GRAPH/ and /PLOT/.

3.2.6.3 Inputs

All inputs for SWPLT are from CAMPLT.

3.2.6.4 Outputs

SWPLT creates the actual line printer plot. The headings are created by CAMPLT.

3.2.6.5 Storage

Total space allocated = 5073

3.2.6.6 Description

SWPLT clears the graph array, enters the plotting characters, and writes the graph to the line printer.

3.2.6.7 Flowchart

Not applicable.

3.2.6.8 Listing

```
FORTRAN IV-PLUS V02-54          07137139     06-SEP-78          PAGE 1
SAPLT.FT.       /TRACE/CHS/WR

0001                SUBROUTINE SAPLT(CHAR)
          C         THIS PROGRAM IS A MODIFIED VERSION OF ANOTHER
          C         TO WHICH ARE ADDED STATEMENTS
          C         ITS PURPOSE IS TO CREATE SPECTRAL PLOTS IN THIS FORMAT
          C         IT IS CALLED BY CAPLT
          C         PLOTTING SYMBOLS ARE PASSED AS CALLING ARGUMENTS
          C         PLOTTING COORDINATES ARE PASSED THRU /PLOT/
0002                IMPLICIT INTEGER (A-Z)
0003          REAL*4 X(209),Y(209),GRAP(11,16),BR-AP(11,19)
0004          INTEGER* SCALE(26)
0005          DIMENSION CH1(209),CH2(209),CH3(209),CH4(209)
0006          DIMENSION DAT(2,5),I(5)
0007          DIMENSION MAP(11,101,4)
0008          DIMENSION P(209)
0009          BYTE BLANK(2),PLUS(2),MAP(101,54)
0010          BYTE CHT,DASH,STAR,PERIOD,BLANK,DOL,PCENT,LB
0011              COMMON /PLOT/ BR,GR
0012              COMMON /GRAPH/ SEG,DATE(2)
0013          BYTE TRAJ(14,128),CHR(209)
0014          EQUIVALENCE (RAD(1,1,1),CH1(1)),(RAD(1,1,2),CH2(1)),
             1(RAD(1,1,3),CH3(1)),(RAD(1,1,4),CH4(1))
0015          EQUIVALENCE (GRAP(1,1),GR(1)),(BR-AP(1,1),BR(1))
0016          EQUIVALENCE (TRAJ(1,1),MAP(1,1))
0017          DATA BLANK,PLUS,DASH,PERIOD,STAR,DOL/' ','+','-','.','*','$'/
0018          DATA PCENT,LB/'%','('/
0019          DATA BLANK/'S','T','A','R','E','R','A','F'/
0020          DATA PLUS/'S','T','A','R','E','R','A','F'/
0021          DATA SCALE/'-5','0','.5','10','15','20','25','30','35','40','45',
             1'50','55','60',' ','70',' ','80',' ','90',' ','100',
             2' ','110',' ','120'/
0022          NPLT=5
0023          DO 90 X=1,101
0024          DO 90 Y=1,56
0025       90 MAP(X,Y)=BLANK
0026          DO 100 X=1,101,10
0027          DO 100 Y=1,56,5
0028      100 MAP(X,Y)=PLUS
0029          DO 105 Y=1,54
0030      105 MAP(101,Y)=PLUS
0031          DO 200 I=1,209
0032          X=RR(I)-18.5
0033          Y=51.5-GR(I)
0034          IF(X.GT.101)X=101
0035          IF(X.LT.1)X=1
0036          IF(Y.GT.56)Y=54
0037          IF(Y.LT.1)Y=1
0038      200 MAP(X,Y)=CHAR(I)
          C   WRITE(6,901)SEG,DATE(1),DATE(2)
          C   WRITE(6,902)
0039          DO 250 J=1,56
0040          K=21
0041          MAP(1,J)=
0042          IF(MOD(J-5),EQ.0)K=13-J/5
0043      250 WRITE(6,903)SCALE(K),(MAP(L,J),L=1,101)
0044          WRITE(6,904)(SCALE(J),J=5,26,2)
0045      400 CONTINUE
```

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```
0046    990 RETURN
0047    [illegible] FORMAT(I4,8(1X,I2,I3,1X,I3))
0048    [illegible] FORMAT('1',32X,'SPECTRAL PLOT--SEGMENT ',I4,2I3)
0049    [illegible] FORMAT(' [illegible] ',A3,10[illegible])
0050    [illegible] FORMAT([illegible],A3,[illegible])
0051    [illegible] FORMAT([illegible],[illegible](A3,[illegible]))
0052    [illegible] FORMAT([illegible],'GROUND TRUTH LABELS--NO BORDER PIXELS')
0053    [illegible] FORMAT([illegible],'[illegible]',[illegible],'[illegible]',8X,'WATS=A',9X,'BARLEY=B',7X,
          1'[illegible]',10X,'FLAX=F',[illegible],'S[illegible]=S')
0054    [illegible] FORMAT([illegible]7X,
          1 '[illegible] TRUTH LABELS')
0055    [illegible] FORMAT([illegible],'[illegible]=-',7X,'SPG([illegible])=[illegible]',7X,'W(S)=[illegible]',9X,'S(W)=[illegible]',9X)
0056    [illegible] FORMAT([illegible],'GROUND TRUTH LABELS--SPG BORDERED WITH NW FLAGGED')
0057    [illegible] FORMAT([illegible],'[illegible]',7X,'SPG-[illegible]')
0058    [illegible] FORMAT([illegible],'GROUND TRUTH LABELS--FIRST LABELS USED ON BORDER PIXEL
          1')
0059    [illegible] FORMAT('[illegible] LABEL DATA FOUND FOR SEGMENT',I4)
0060    [illegible] FORMAT('[illegible] SPECTRAL DATA FOUND FOR SEGMENT ',I4,' DATE ',I2,I3)
0061    [illegible] FORMAT('0',11(19(A2,[illegible])/'0'))
0062    [illegible] FORMAT([illegible],I4,2X,I2,I3)
0063    [illegible] FORMAT([illegible],10X,'[illegible]',2X,'PIXEL',2X,'GR.NW.',3X,'BR.',3X,'BORD.LAB
          1',2X,'[illegible]',LAB,'/1X/)
0064    [illegible] FORMAT(11X,I2,4X,I2,4X,F5.1,2X,F5.1,6X,A1,10X,A1)
0065    [illegible] FORMAT(11X,35I4)
0066    END
```

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PROGRAM SECTIONS

NUMBER	NAME	SIZE		ATTRIBUTES
1	TC [illegible]	000762	249	RW,I,CON,LCL
3	$IDATA	000036	15	RW,I,CON,LCL
4	[illegible]	017404	3970	RW,I,CON,LCL
6	PLOT	003210	636	RW,I,OVR,GBL
7	GRAPH	000006	3	RW,I,OVR,GBL

ENTRY POINTS

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
SWPLT		1-000000												

VARIABLES

NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS	NAME	TYPE	ADDRESS
BLANK	L*1	4-017356	DASH	L*1	4-017353	DPL	L*1	4-017357	DPT	L*1	4-017352	I	I*2	4-017372
J	I*2	4-017374	K	I*2	4-017376	L	I*2	4-017402	LM	L*1	4-017361	M	I*2	4-017400
NPLT	I*2	4-017364	PCENT	L*1	4-017360	PERIOD	I*2	4-017362	PLUS	L*1	4-017355	SEG	I*[illegible]	7-000000
STAR	L*1	4-017354	X	I*	4-017366	Y	I*2	4-017370						

ARRAYS

NAME	TYPE	ADDRESS	SIZE		DIMENSIONS
ALABEL	L*1	4-017332	000010	4	(8)
BP	R*4	6-000000	001504	416	(209)
BRMAP	R*4	6-000000	001504	416	(11,19)
CHAR	L*1	7-000002*	000321	1 4	(209)
CH1	I*2	4-013030	000642	209	(209)
CH2	I*2	4-013672	000642	2 9	(209)
CH3	I*2	4-014534	000642	2 9	(209)
CH4	I*2	4-015376	000642	209	(209)
DAT	I*2	4-014410	000040	6	(2,8)
DATE	I*2	7-000002	000004	2	(2)
GN	R*4	6-001504	001504	416	(209)
GNMAP	R*4	6-001504	001504	416	(11,19)
IGN	I*2	4-016450	000020	8	(8)
MAP	L*1	4-000000	013030	2820	(101,56)
P	I*2	4-016470	000642	209	(209)
PLABEL	L*1	4-017342	000010	4	(8)
RAD	I*2	4-013030	003210	636	(11,19,4)
SCALE	I*4	4-016240	000150	2	(26)
TRAJ	L*1	4-000000	003600	960	(16,120)

LABELS

LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS	LABEL	ADDRESS

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90	..	100	..	105	..	200	..	250	..
400	..	900'	..	901'	..	902'	..	903'	3-000000
904'	3-000010	906'	..	907'	..	908'	..	909'	..
910'	..	911'	..	912'	..	913'	..	914'	..
915'	..	916'	..	917'	..	918'	..	919'	..
999	..								

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3.2.7 SOFTWARE COMPONENT 7 (FETCX)

FETCX is identical to FETCH except that it accesses [200,7] DOTDATA.ACA rather than a local file. FETCH is an undocumented utility.

4. OPERATION

Each module in this system is run by a batch deck. FLOCON has copies of these decks. Maintenance and generation of the data files is not addressed in this document.