ESTACION COTOPAXI

CLIRSEN

CENTRO DE LEVANTAMIENTOS INTEGRADOS DE RECURSOS NATURALES POR SENSORES REMOTOS

FORMATOS DE LAS CINTAS QUE CLIRSEN UTILIZA EN SUS PRODUCTOS SAR IMAGEN.

Septiembre/1992

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Jan. 93

CCT-FORMATS

BRIEF GUIDE TO READ ERS-1 SAR DATA PRODUCTS

GENERATED AT COTOPAXI/ECUADOR STATION

1. SARPS-PRODUCT: 16BITS (SEASAT TYPE FORMAT)

REF MANUAL: DPD-TM # 81-199B (AVAILABLE AT ERS-1 HELP DESK, ESRIN FRASCATI)

The following indications are based on the analysis of one data set delivered to ESRIN.

It consists of 2 CCTs

```
1 of 2 : 2 headerfiles
         1 datafile with 13483 rec, 4050 pixel (16bits)
                                     total 8196 bytes/rec
2 of 2 : 1 headerfile
         1 datafile with 10252 rec, 4050 pixel
         1 trailerfile
```

Datafile organization:

NOTE: start of image data in datafile col.=94, rec.=2

```
1 of 2:
1st rec = header rec
2nd rec = byte 97 to 4146, 1st part of 1st image line
3rd rec =     ......       2nd part of 1st image line
4th rec =     ......       3rd part of 1st image line
5th rec =     ......       1st part of 2nd image line
....

2 of 2:
1st rec = header rec
2nd rec = byte 97 to 4146, 1st part of 4493th image line
3rd rec =     ......       2nd part of 4493th image line
.....
```

Total image data: 7911 records, 12150 columns

CCT-FORMATS

BRIEF GUIDE TO READ ERS-1 SAR DATA PRODUCTS

GENERATED AT COTOPAXI/ECUADOR STATION (cont.)

2. SARPS/MERIDIAN-PRODUCT: 8BITS (SEASAT TYPE FORMAT)

REF MANUAL: DPD-TM # 81-199B (AVAILABLE AT ERS-1 HELP DESK, ESRIN FRASCATI)

The following indications are based on the analysis of three data set delivered to ESRIN.

A scene is stored on a single CCT.

2 headerfiles
1 datafile with 7943 rec, 12042bytes/rec

Datafile organization:

1 header record

rec 2 to 7943 with the following structure:

byte 1-32	32 bytes prefix
33-3986	1st line, 1st part of image (3954 pixels)
3987-4082	96 bytes prefix
4083-8036	1st line, 2nd part of image (3954 pixels)
8037-8132	96 bytes prefix
8133-12042	1st line 3rd part of image (approx. only 300 pixels usable, rest zeros)

FORMATO DE LA PRIMERA CINTA PRODUCIDA POR SARPS (1/2)

Trace flags initialized 28-AUG-1992 13:15:49.26 **ANEXO A**

```
VOLUME DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                          : 1
 record descriptor codes              :  first  record  second   third
                                          300     300     022     022
 rec_length                           : 360

 ascii/ebcdic                         : A
 two blanks                           :
 doc number                           : CCB-CCT-0002
 doc rev number                       :  C
 record format rev                    :  A
 software release                     : CCTGEN 02 01
 tape_id                              : ERS-1
 logical volume id                    : T153156544-00000
 volume set id                        : D920519-F0004407
 physical volumes                     :  2
 start physical volume                :  1
 end physical volume                  :  1
 this physical volume                 :  1
 first referenced file                :    1
 log vol num set                      :    1
 log vol num phys                     :    1
 create date                          : 19920811
 create time                          : 07542400
 country                              : ECUADOR
 agency                               : CLIRSEN
 facility                             : SARPS
 number pointer records               :    2
 number of records                    :    4
 spare and local use not dumped
FILE POINTER
 RECORD INTRO CODES
 rec_seq_num                          : 2
 record descriptor codes              :  first  record  second   third
                                          333     300     022     022
 rec_length                           : 360

 ASCII/EBCDIC                         : A
 two blanks                           :
 rf number                            :    1
 rf name                              : ERS-1 L
 rf class                             : LEADER FILE
 rf class code                        : LEAD
 rf data type                         : MIXED BINARY AND ASCII
 rf data type code                    : MBAA
 number records                       :      663
 1st record length                    :      360
 max record length                    :     8640
 record length type                   : VARIABLE LEN
 record length tcode                  : VARE
 start physical volume                :  1
 end physical volume                  :  1
 first record number                  :        1
 last record number                   :
 spare and local use not dumped
FILE POINTER
 RECORD INTRO CODES
 rec_seq_num                          : 3
```

```
                                          333     300     022     022
 rec_length                             : 360

 ASCII/EBCDIC                           : A
 two blanks                             :
 rf number                              :    2
 rf name                                : ERS-1 I    -C HH
 rf class                               : IMAGERY FILE
 rf class code                          : IMGY
 rf data type                           : MIXED BINARY AND ASCII
 rf data type code                      : MBAA
 number records                         :    13483
 1st record length                      :     8100
 max record length                      :     8100
 record length type                     : FIXED LENGTH
 record length tcode                    : FIXD
 start physical volume                  :  1
 end physical volume                    :  1
 first record number                    :        1
 last record number                     :
 spare and local use not dumped
TEXT RECORD
 RECORD INTRO CODES
 rec_seq_num                            : 4
 record descriptor codes                :  first  record  second   third
                                          022     077     022     022
 rec_length                             : 360

 ASCII/EBCDIC                           : A
 continuation flag                      :
 text information                       :

    PRODUCT ERS-1  IMAGE DATA     -C HH                PROCESS ECUADOR      CLIRSE
N  SARPS       19920811FLIGHT 0004407 DATE 19920519153156544 OFFSET00000 TAPE ID
ERS-1    TAPE  1 OF  2                    PROCESS FLAGS G A R Y Y N Y 4
          ANNOTATION  3  1  12.500000  12.500000            AUX SV19920519144054
860 FFT8192 RG   1
*** END OF FILE ***
FILE DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                            : 1
 record descriptor codes                :  first  record  second   third
                                          077     300     022     022
 rec_length                             : 360

 ascii/ebcdic                           : A
 two blanks                             :
 doc number                             : DPDTM 81-1998
 doc rev number                         :  A
 file design revision                   :  A
 software release                       : CCTGEN 01 02
 file number                            :    1
 file name                              : ERS-1 L
 record seq & location                  : FSEQ
 sequence number location               :        1
 sequence number field length           :    4
 record code & location                 : FTYP
 record code location                   :        5
 record code field length               :    4
 record length & location               : FLGT
 record length location                 :        9
 record length field len                :    4
```

```
 interp in other record                    : N
 display in descriptor                     : N
 display in other record                   : N
 reserved segment not dumped
Variable segment not dumped
First subtype code of 022 not recognised
First subtype code of 022 not recognised

.
.
.

First subtype code of 022 not recognised
First subtype code of 022 not recognised
*** END OF FILE ***
FILE DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                               : 1
 record descriptor codes                   :  first  record  second   third
                                              077     300     022     022
 rec_length                                : 8100

 ascii/ebcdic                              : A
 two blanks                                :
 doc number                                : DPDTM 81-1993
 doc rev number                            :  A
 file design revision                      :  A
 software release                          : CCTGEN 02 01
 file number                               :    2
 file name                                 : ERS-1 I    -C HH
 record seq & location                     : FSEQ
 sequence number location                  :        1
 sequence number field length              :    4
 record code & location                    : FTYP
 record code location                      :        5
 record code field length                  :    4
 record length & location                  : FLGT
 record length location                    :        9
 record length field len                   :    4
 interp in descriptor                      : Y
 interp in other record                    : N
 display in descriptor                     : Y
 display in other record                   : N
 reserved segment not dumped
Variable segment not dumped
IMAGE RECORD 50
IMAGE RECORD 100
.
.
.

IMAGE RECORD 13400
IMAGE RECORD 13450
*** END OF FILE ***
*** END OF FILE ***
$QIOW failed, job terminated because of fatal drive error. Check density of tape
 Trace log closed                          28-AUG-1992    13:24:47.27
```

FORMATO DE LA SEGUNDA CINTA PRODUCIDA POR SARPS (2/2)

```
Trace flags initialized            28-AUG-1992    11:50:17.71

VOLUME DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                       : 1
 record descriptor codes           :  first  record  second   third
                                      300     300     022      022
 rec_length                        : 360

 ascii/ebcdic                      : A
 two blanks                        :
 doc number                        : CCB-CCT-0002
 doc rev number                    :  C
 record format rev                 :  A
 software release                  : CCTGEN 02 01
 tape_id                           : ERS-1:2
 logical volume id                 : T153156544- 4494
 volume set id                     : D920519-F0004407
 physical volumes                  :  2
 start physical volume             :  2
 end physical volume               :  2
 this physical volume              :  2
 first referenced file             :    1
 log vol num set                   :    2
 log vol num phys                  :    2
 create date                       : 19920811
 create time                       : 08075200
 country                           : ECUADOR
 agency                            : CLIRSEN
 facility                          : SARPS
 number pointer records            :    1
 number of records                 :    3
 spare and local use not dumped
FILE POINTER
 RECORD INTRO CODES
 rec_seq_num                       : 2
 record descriptor codes           :  first  record  second   third
                                      333     300     022      022
 rec_length                        : 360

 ASCII/EBCDIC                      : A
 two blanks                        :
 rf number                         :    1
 rf name                           : ERS-1 I    -C HH
 rf class                          : IMAGERY FILE
 rf class code                     : IMGY
 rf data type                      : MIXED BINARY AND ASCII
 rf data type code                 : MBAA
 number records                    :    10267
 1st record length                 :     8100
 max record length                 :     8100
 record length type                : FIXED LENGTH
 record length tcode               : FIXD
 start physical volume             :  2
 end physical volume               :  2
 first record number               :        1
 last record number                :
 spare and local use not dumped
TEXT RECORD
 RECORD INTRO CODES
 rec seq num                       : 3
```

```
                                          022     077     022     022
 rec_length                            : 360

 ASCII/EBCDIC                          : A
 continuation flag                     :
 text information                      :

    PRODUCT ERS-1  IMAGE DATA     -C HH                PROCESS ECUADOR      CLIRSE
N  SARPS       19920811FLIGHT 0004407 DATE 19920519153156544 OFFSET 4494 TAPE ID
ERS-1:2  TAPE  2 OF  2                    PROCESS FLAGS G A R Y Y N Y 4
           ANNOTATION  3  1  12.500000  12.500000            AUX SV19920519144054
860 FFT8192 RG   1
*** END OF FILE ***
FILE DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                           : 1
 record descriptor codes               :  first  record  second   third
                                          077     300     022     022
 rec_length                            : 8100

 ascii/ebcdic                          : A
 two blanks                            :
 doc number                            : DPDTM 81-199β
 doc rev number                        :  A
 file design revision                  :  A
 software release                      : CCTGEN 02 01
 file number                           :    1
 file name                             : ERS-1 I    -C HH
 record seq & location                 : FSEQ
 sequence number location              :        1
 sequence number field length          :    4
 record code & location                : FTYP
 record code location                  :        5
 record code field length              :    4
 record length & location              : FLGT
 record length location                :        9
 record length field len               :    4
 interp in descriptor                  : Y
 interp in other record                : N
 display in descriptor                 : Y
 display in other record               : N
 reserved segment not dumped
Variable segment not dumped
IMAGE RECORD 50
IMAGE RECORD 100
.
.
.

IMAGE RECORD 10200
IMAGE RECORD 10250
*** END OF FILE ***
VOLUME DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                           : 1
 record descriptor codes               :  first  record  second   third
                                          300     300     077     022
 rec_length                            : 360

 ascii/ebcdic                          : A
 two blanks                            :
 doc number                            : CCB-CCT-0002
```

```
 record format rev                          :  A
 software release                           : CCTGEN 02 01
 tape_id                                    : ERS-1:2
 logical volume id                          :
 volume set id                              : D920519-F0004407
 physical volumes                           :  2
 start physical volume                      :  2
 end physical volume                        :  2
 this physical volume                       :  2
 first referenced file                      :    1
 log vol num set                            :    2
 log vol num phys                           :    2
 create date                                :
 create time                                :
 country                                    :
 agency                                     :
 facility                                   :
 number pointer records                     :
 number of records                          :
 spare and local use not dumped
*** END OF FILE ***
*** END OF FILE ***
*** END OF FILE ***
 Trace log closed                            28-AUG-1992    11:55:39.62
```

FORMATO DE LA CINTA PRODUCIDA POR **MERIDIAN**

Trace flags initialized 28-AUG-1992 09:14:58.49 **ANEXO B**

```
VOLUME DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                          : 1
 record descriptor codes              :  first  record  second   third
                                          300     300     022     022
 rec_length                           : 360

 ascii/ebcdic                         : A
 two blanks                           :
 doc number                           : CCB-CCT-0002
 doc rev number                       :  D
 record format rev                    :  A
 software release                     : MERIDIAN-A
 tape_id                              : IASCZ921460311
 logical volume id                    : IASCZ9214603
 volume set id                        : ANALYSIS     BSQ
 physical volumes                     :  1
 start physical volume                :  1
 end physical volume                  :  1
 this physical volume                 :  1
 first referenced file                :    1
 log vol num set                      :    1
 log vol num phys                     :    1
 create date                          : 19920525
 create time                          : 10210164
 country                              : ECUADOR
 agency                               : MERIDIAN
 facility                             : CLIRSEN COTO
 number pointer records               :    3
 number of records                    :    6
 spare and local use not dumped
FILE POINTER
 RECORD INTRO CODES
 rec_seq_num                          : 2
 record descriptor codes              :  first  record  second   third
                                          333     300     022     022
 rec_length                           : 360

 ASCII/EBCDIC                         : A
 two blanks                           :
 rf number                            :    1
 rf name                              : IAS   ZLEADBSQ
 rf class                             : LEADER FILE
 rf class code                        : LEAD
 rf data type                         : MIXED BINARY AND ASCII
 rf data type code                    : MBAA
 number records                       :        3
 1st record length                    :     4320
 max record length                    :     4320
 record length type                   : FIXED LENGTH
 record length tcode                  : FIXD
 start physical volume                :  1
 end physical volume                  :  1
 first record number                  :        1
 last record number                   :        3
 spare and local use not dumped
FILE POINTER
 RECORD INTRO CODES
 rec_seq_num                          : 3
```

```
                                        333     300     022     022
 rec_length                           : 360

 ASCII/EBCDIC                         : A
 two blanks                           :
 rf number                            :    2
 rf name                              : IAS   ZIMGYBSQ
 rf class                             : IMAGERY FILE
 rf class code                        : IMGY
 rf data type                         : BINARY ONLY
 rf data type code                    : BINO
 number records                       :     7932
 1st record length                    :      540
 max record length                    :    12042
 record length type                   : VARIABLE LEN
 record length tcode                  : VARE
 start physical volume                :  1
 end physical volume                  :  1
 first record number                  :        1
 last record number                   :     7932
 spare and local use not dumped
FILE POINTER
 RECORD INTRO CODES
 rec_seq_num                          : 4
 record descriptor codes              :  first  record  second   third
                                        333     300     022     022
 rec_length                           : 360

 ASCII/EBCDIC                         : A
 two blanks                           :
 rf number                            :    3
 rf name                              : IAS   ZTRAIBSQ
 rf class                             : TRAILER FILE
 rf class code                        : TRAI
 rf data type                         : MIXED BINARY AND ASCII
 rf data type code                    : MBAA
 number records                       :        1
 1st record length                    :      360
 max record length                    :      360
 record length type                   : FIXED LENGTH
 record length tcode                  : FIXD
 start physical volume                :  1
 end physical volume                  :  1
 first record number                  :        1
 last record number                   :        1
 spare and local use not dumped
 MERIDIAN TEXT RECORD
 RECORD INTRO CODES
 rec_seq_num                          : 5
 record descriptor codes              :  first  record  second   third
                                        022     077     022     027
 rec_length                           : 360

 ASCII/EBCDIC                         : A
 continuation flag                    : C
 text record type flag                : T
 MERIDIAN header information          :
 name                                 : FRAME # 3681
 comment                              : 8 BITS IMAGE
 map projection name                  : MERIDIAN BULK
 map projection type                  : BULK
 film_exposure_valid                  : N
```

```
central meridian                        :      -64.5166400


MERIDIAN TEXT RECORD
RECORD INTRO CODES
rec_seq_num                             : 6
record descriptor codes                 :  first  record  second   third
                                           022     077     022     027
rec_length                              : 360

ASCII/EBCDIC                            : A
continuation flag                       :
text record type flag                   : F
MERIDIAN feature information            :
name                                    : BAND 1
feature_type                            : I
comment                                 : SAR SENSOR - NO WAVELENGHT
resolution                              :        8
source                                  : ANALYSIS
date                                    :
time                                    :
upper_wavelength                        :   0.000000000000
lower_wavelength                        :   0.000000000000
lut                                     :
pseudocolour_lut                        :
graphic_colour                          :        0
ref_class_set                           :
satellite                               : ANALYSIS
sensor                                  : IAS
processing_level                        : 00
map_sheet_id                            :
mosaic_type                             :
view_angle                              :        0.0000000


*** END OF FILE ***
LEADER FILE DESCRIPTOR
RECORD INTRO CODES
rec_seq_num                             : 1
record descriptor codes                 :  first  record  second   third
                                           077     300     127     027
rec_length                              : 4320

ascii/ebcdic                            : A
two blanks                              :
doc number                              : INTSMDTSU001
doc rev number                          :  A
file design revision                    :  A
software release                        : MERIDIAN-A
file number                             :    1
file name                               : IAS   ZLEADBSQ
record seq & location                   : FSEQ
sequence number location                :        1
sequence number field length            :    4
record code & location                  : FTYP
record code location                    :        5
record code field length                :    4
record length & location                : FLGT
record length location                  :        9
record length field len                 :    4
interp in descriptor                    : Y
interp in other record                  : N
```

```
display in other record                  : N
reserved segment not dumped
num_header_rec                           :      1
header_rec_len                           :   4320
num_map_anc_rec                          :      1
anc_rec_len                              :   4320
num_annot_rec                            :      0
annot_rec_len                            :
scene id locator                         :   rec_num rec_byte_num length data_type
                                                 2,          37,    16,    A
WRS id locator                           :   rec_num rec_byte_num length data_type
                                                 ,           ,      ,
mission id locator                       :   rec_num rec_byte_num length data_type
                                                 ,           ,      ,
sensor id locator                        :   rec_num rec_byte_num length data_type
                                                 2,         325,    16,    A
exposure date time locator               :   rec_num rec_byte_num length data_type
                                                 ,           ,      ,
geographic reference locator             :   rec_num rec_byte_num length data_type
                                                 2,         213,    32,    N
image processing performed loc           :   rec_num rec_byte_num length data_type
                                                 2,        1477,    96,    A
image format locator                     :   rec_num rec_byte_num length data_type
                                                 2,        1717,    16,    A
band indicator locator                   :   rec_num rec_byte_num length data_type
                                                 2,        1653,    64,    A
subscene indicator locator               :   rec_num rec_byte_num length data_type
                                                 2,         208,     1,    A
inter_pixel & inter_line scale           :   rec_num rec_byte_num length data_type
                                                 3,         365,    32,    N
quadrant vertical overlap loc            :   rec_num rec_byte_num length data_type
                                                 2,         277,    16,    N
quadrant horiz overlap locator           :   rec_num rec_byte_num length data_type
                                                 2,         293,    16,    N
spare not dumped
SCENE HEADER
RECORD INTRO CODES
rec_seq_num                              : 2
record descriptor codes                  :  first  record  second   third
                                            022     022     022     027
rec_length                               : 4320

header_rec_seq                           :    1
prod_id                                  : FRAME # 3681
scene_id                                 : ERS-1
scene_cen_lat                            :       -3.8341640
scene_cen_long                           :      -64.5166400
line_num_scene_cen                       :     3966.0000000
pixel_num_scene_cen                      :     5787.0000000
scene_cen_time                           : 19920521075538
reference_system_desig                   :
reference_system_cycle                   : 0
proc_scene_id                            : FRAME # 3681
proc_scene_cen_lat                       :       -3.8048723
proc_scene_cen_long                      :      -64.5324921
line_num_proc_scene_cen                  :     3965.5000000
pixel_num_proc_scene_cen                 :     5931.0000000
num_active_chan                          :               1
num_pixels_per_line                      :           11862
num_lines                                :            7931
rad_res_desig                            :               8
map_proj_id                              : NNNNNNNNNNNNNNN
```

```
num_map_proj_rec                        :                1
num_rad_rec                             :                0
active_chan                             : 1000000000000000000000000000000000000000000C
interleaving_ind                        : BSQ
MERIDIAN MAP PROJECTION
RECORD INTRO CODES
rec_seq_num                             : 3
record descriptor codes                 :  first  record  second   third
                                           044     044     022     027
rec_length                              : 4320

nom_scene_data_pixels                   :            11862
nom_scene_data_lines                    :             7931
nom_pixel_size_at_nadir                 :       12.5000000
nom_line_spacing_at_nadir               :       12.5000000
UTM_datum_zone                          : CLA 66        20
centre_northing                         :  -423079.2839680
centre_easting                          : -7159869.5213932
centre_orientation                      :      192.4864807
num_pixels_per_line                     :            11862
num_lines                               :             7931
proc_pixel_spacing                      :       12.5000000
proc_line_spacing                       :       12.5000000
proc_UTM_datum_zone                     : CLA 66        20
proc_orientation                        :      192.4864807
sun elevation                           :
sun azimuth                             :
UTM_coords_ulc_northing                 :
UTM_coords_ulc_easting                  :
UTM_coords_urc_northing                 :
UTM_coords_urc_easting                  :
UTM_coords_llc_northing                 :
UTM_coords_llc_easting                  :
UTM_coords_lrc_northing                 :
UTM_coords_lrc_easting                  :
lat_long_coords_ulc_lat                 :
lat_long_coords_ulc_long                :
lat_long_coords_urc_lat                 :
lat_long_coords_urc_long                :
lat_long_coords_llc_lat                 :
lat_long_coords_llc_long                :
lat_long_coords_lrc_lat                 :
lat_long_coords_lrc_long                :
line_pixel_coords_ulc_line              :        1.0000000
line_pixel_coords_ulc_pixel             :        1.0000000
line_pixel_coords_urc_line              :        1.0000000
line_pixel_coords_urc_pixel             :            11862
line_pixel_coords_llc_line              :             7931
line_pixel_coords_llc_pixel             :        1.0000000
line_pixel_coords_lrc_line              :             7931
line_pixel_coords_lrc_pixel             :            11862
*** END OF FILE ***
IMAGE FILE DESCRIPTOR
RECORD INTRO CODES
rec_seq_num                             : 1
record descriptor codes                 :  first  record  second   third
                                           077     300     227     027
rec_length                              : 540

ascii/ebcdic                            : A
two blanks                              :
doc number                              : INTSMDTSU001
```

```
file design revision                    :  A
software release                        : MERIDIAN-A
file number                             :    2
file name                               : IAS   ZIMGYBSQ
record seq & location                   : FSEQ
sequence number location                :        1
sequence number field length            :    4
record code & location                  : FTYP
record code location                    :        5
record code field length                :    4
record length & location                : FLGT
record length location                  :        9
record length field len                 :    4
interp in descriptor                    : Y
interp in other record                  : N
display in descriptor                   : N
display in other record                 : N
reserved segment not dumped
number records                          : 7931
image record length                     : 12042
reserved                                :
bits per pixel                          : 8
bits per data group                     :
bytes per data group                    :
justification                           :
number of bands                         : 1
number of lines                         : 7931
left border pixels                      :    0
pixels per line                         : 11862
right border pixels                     : 0
top border pixels                       :    0
bottom border pixels                    :    0
interleaving indicator                  : BSQ
records per line                        :  1
records per multispectral line          : 1
number prefix bytes                     :   20
number image bytes                      : 11862
number suffix bytes                     :  148
repeat flag                             :
scan line number locator                :    start_byte length pre_suf data_type
                                             0001,    04,    P    ,    B
image(band) number locator              :    start_byte length pre_suf data_type
                                             0005,    04,    P    ,    B
number left fill bits                   :    0
number right fill bits                  :    0
maximum data range                      : 255

MERIDIAN IMAGE RECORD 50
MERIDIAN IMAGE RECORD 100

.
.
.

MERIDIAN IMAGE RECORD 7850
MERIDIAN IMAGE RECORD 7900
*** END OF FILE ***
TRAILER FILE DESCRIPTOR
RECORD INTRO CODES
rec_seq_num                             : 1
record descriptor codes                 :  first  record  second   third
                                            077     300     327     027
```

```
ascii/ebcdic                          : A
two blanks                            :
doc number                            : INTSMDTSU001
doc rev number                        :  A
file design revision                  :  A
software release                      : MERIDIAN-A
file number                           :    3
file name                             : IAS   ZTRAIBSQ
record seq & location                 : FSEQ
sequence number location              :        1
sequence number field length          :    4
record code & location                : FTYP
record code location                  :        5
record code field length              :    4
record length & location              : FLGT
record length location                :        9
record length field len               :    4
interp in descriptor                  : Y
interp in other record                : N
display in descriptor                 : N
display in other record               : N
reserved segment not dumped
number trailer records                :      0
trailer record length                 :
reserved not dumped
parity error locator                  :   rec_num rec_byte_num length data_type
                                              ,           ,        ,
quality summary locator               :   rec_num rec_byte_num length data_type
                                              ,           ,        ,

*** END OF FILE ***
VOLUME DESCRIPTOR
 RECORD INTRO CODES
 rec_seq_num                          : 1
 record descriptor codes              :  first  record  second   third
                                         300    300     077     022
 rec_length                           : 360

 ascii/ebcdic                         : A
 two blanks                           :
 doc number                           : CCB-CCT-0002
 doc rev number                       :  D
 record format rev                    :  A
 software release                     : MERIDIAN-A
 tape_id                              : IASCZ921460311
 logical volume id                    : IASCZ9214603
 volume set id                        : ANALYSIS     BSQ
 physical volumes                     : 1
 start physical volume                :  1
 end physical volume                  :  1
 this physical volume                 :  1
 first referenced file                :
 log vol num set                      :    2
 log vol num phys                     :    2
 create date                          :
 create time                          :
 country                              : ECUADOR
 agency                               : MERIDIAN
 facility                             : CLIRSEN COTO
 number pointer records               :
 number of records                    :
```

```
*** END OF FILE ***
*** END OF FILE ***
*** END OF FILE ***
 Trace log closed                    28-AUG-1992    09:20:44.28
```

REPORT:
CONTENTS OF IMAGE SET IMAGEN RADAR

COMMENT: IMAGEN RADAR ERS-1

DIMENSIONS:
LINE/PIXEL CORNERS

UPPER LEFT LINE	:	1	PIXEL	:	1
LOWER RIGHT LINE	:	7943	PIXEL	:	11862

REFERENCE POINT:

PROJECTION TYPE	:	BULK
ORIGINAL COORDINATE TYPE	:	Geodetic
IMAGE ORIENTATION	:	192.477 degrees clockwise from north
MAP PROJECTION NAME	:	MERIDIAN BULK
EARTH MODEL NAME	:	CLARKE 1866
CENTRAL MERIDIAN	:	79.904 W
X PIXEL SIZE	:	12.50 m
Y PIXEL SIZE	:	12.50 m

LINE/PIXEL REFERENCE POINT

LINE	:	3972.00
PIXEL	:	5643.00

GEODETIC REFERENCE POINT

LATITUDE	:	1.971169 S
LONGITUDE	:	79 904 W
ELEVATION	:	0 m

INPUT SCENE:

INPUT SOURCE ID	:	ERS-1			
INPUT SCENE CENTRE					
LATITUDE	:	1.971154 S	LONGITUDE	:	79.904 W
LINE	:	3972.0	PIXEL	:	5643.0
DATE	:	28-JUL-1992	TIME	:	08:01:40.00

REFERENCE SYSTEM	:	GRS			
DESIGNATOR	:	- -	CYCLE	:	0

NUMBER OF AZIMUTH LOOKS : 3

LIST OF FEATURES:

NAME	TYPE COMMENT
BAND 1	IMG16 SAR Sensor - no wavelength

The Equador SAR Processing System is based on a GSAR system whose input processing was modified to accept ERS-1 downlink data. Therefore this system has the processing and output capabilities of GSAR.

I believe the following attachments cover all the information you requested in your fax of November 24th (ESA REF:DEX/EU/9211-0219):

Attachment A1 - Factory Acceptance Test Criteria that was performed on the processor test data product. (product accuracy, resolution, etc.)

Attachment A2 - Description of operator entered processing parameters. (looks, projection, pixel spacing, etc.)

Attachment A3 - Description of the bits/pixel and output data format

With respect to processor performance, it takes approximately 12 hours to produce a product at the Cotopaxi Station.

Pass/Fail Criteria

1. The data is processed to completion successfully.

2. The ground range IRW is less than or equal to 27 metres at far range and 35 metres at near range.

3. The averaged azimuth resolution is less than or equal to 30 metres.

4. The averaged first side lobe level is less than or equal to -20 dB.

5. The averaged ISLR is less than or equal to -16 dB.

6. The averaged point target misregistration is less than or equal to two resolution cells. The averaged point target misregistration is the arithmetic average of a selected sample of target misregistration errors.

7. The measured radiometric linearity is greater than 0.95.

8. Total processing time is not more than 12 hours.

9. ~~The values of the operator-entered~~ parameters are the same as those printed by the data base dump utility.

10. The outputs of the CCT dump agree with Document R-4.

11. The image size is approximately 100 km x 100 km.

DPD-TM #81-199B

```
                 1         2         3         4         5         6         7         8
        12345678901234567890123456789012345678901234567890123456789012345678901234567890
        ------------------------------------------------------------------------------
      1|                              Processing Parameters                            |1
      2|                                                                               |2
      3|                                                                               |3
      4|          Range FFT size                      [1024 - 8192] :   8192           |4
      5|                                                                               |5
      6|          First range sample to process        [1 - 5616] :      1             |6
      7|                                                                               |7
      8|          Number of azimuth blocks                        :      4             |8
      9|                                                                               |9
     10|          Number of azimuth looks                  [1 - 6] :      6             |10
     11|                                                                               |11
     12|          Slant range to ground range conversion  [Y/N] :      Y             |12
     13|                                                                               |13
     14|          Image pixel spacing (metres)                                         |14
     15|                                          Azimuth  :  12.50                    |15
     16|                                          Range    :  12.50                    |16
     17|                                                                               |17
     18|                                                                               |18
     19|                              +-----------------------------------------+      |19
     20|                              | To enter values, press F18              |      |20
     21|                              | To return to modification menu, press F17 |    |21
     22|                              +-----------------------------------------+      |22
     23|                                                                               |23
        ------------------------------------------------------------------------------
        12345678901234567890123456789012345678901234567890123456789012345678901234567890
                 1         2         3         4         5         6         7         8
```

FIGURE 4-7 PROCESSING PARAMETERS DISPLAY

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4.4.1.4 Modify SAR Processing Parameters

The Processing Parameters screen is shown in Figure 4-7. The parameters which can be modified by the operator are:

- range FFT size
- starting range sample to process
- number of azimuth blocks to process
- number of azimuth looks
- slant range-to-ground range conversion flag
- image pixel spacing

Range FFT Size

The range FFT size determines the amount of data to be processed in the range direction. The allowed range FFT sizes are 2048, 4096 or 8192 complex samples. This parameter determines the product size in the range dimension.

Starting Range Sample

The starting range sample parameter defines the starting sample in the range direction for the data to be processed, and hence the location of the start of the product image data in the range direction. This parameter allows the product image to be offset from the beginning of the available data in the range direction. The parameter value may range from 1 to 5615.

Number of Azimuth Blocks

The number of azimuth blocks parameter determines the number of range lines to be processed, and hence the size of the product in the azimuth dimension. One azimuth block contains 8192 range lines. The SARPS requires that the data to be processed consists of an integral number of azimuth blocks. If the transcribed satellite data does not meet this condition, lines of pseudorandom data will be automatically inserted following the last range line in the transcribed satellite data to fill up the final azimuth block.

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Number of Azimuth Looks

The number of azimuth looks parameter determines the number of sub-apertures of azimuth frequency data which will be processed. The number of looks may be selected in the range of 1 to 6. Increasing the number of looks increases the signal-to-noise ratio of the final image at the expense of geometric resolution.

Slant Range-to-Ground Range Conversion

The slant range-to-ground range conversion flag specifies whether the product image will be left in slant range coordinates, as sensed by the satellite, or will be interpolated to ground range coordinates. The input is "Y" for slant range-to-ground range conversion or "N" if the image is to be left in slant range coordinates.

Image Pixel Spacing

The image pixel spacing parameters determine the product image pixel spacings resulting from interpolation of the image data. The azimuth and range pixel spacings are specified in metres. In ground range coordinates, the minimum allowed values are 12.5 metres for both azimuth and range.

The range FFT size, number of azimuth blocks and image pixel spacing determine the size and thus the ground coverage of the final image. Refer to Appendix B for information on determining the size of the output product.

4.1.1.5 Modify SAR Processing Options

The Processing Options screen in shown in Figure 4-8. The parameters which may be modified by the operator are:

- range chirp extraction flag
- raw data correction flag
- Doppler Ambiguity Resolver (DAR) flag
- azimuth autofocus flag

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3.3.3 Data Interface

Input data to the processor is supplied from a set of disk files containing transcribed HDDT data. The disk files reside on the Raw Data Storage Disk (RDSD). The data ingest module of the SARPS (HRDIN) ingests HDDT data, unpacks the data and transfers the data to RDSD files. Each RDSD disk file contains a fixed number of ERS-1 input range lines. The data is unpacked from ERS-1 5-bit I/Q unsigned format to 8-bit I/Q unsigned format. The data is baseband data but may be in OGRC or OBRC format.

Two large intermediate data files are used during processing. Data flows between these files during the course of processing. The data after range compression and before azimuth compression is signed 8-bit I/Q. The data after azimuth compression is signed 16-bit I/Q. The data after look summation and detection is unsigned 16-bit. Image data and range-compressed data are stored in one disk file. Azimuth FFT, Range Cell Migration Correction (RCMC) azimuth-compressed data are stored in the other disk file. The I/O data description for each task is given in the processing file.

The output image is written to CCT in LGSOWG format. Details of this format are given in Reference 20.

this is the DPD-TM#81-199B reference given earlier.

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