TDRS Space-to-Ground Link Weather Events

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1995 Comparison With White Sands Complex Data

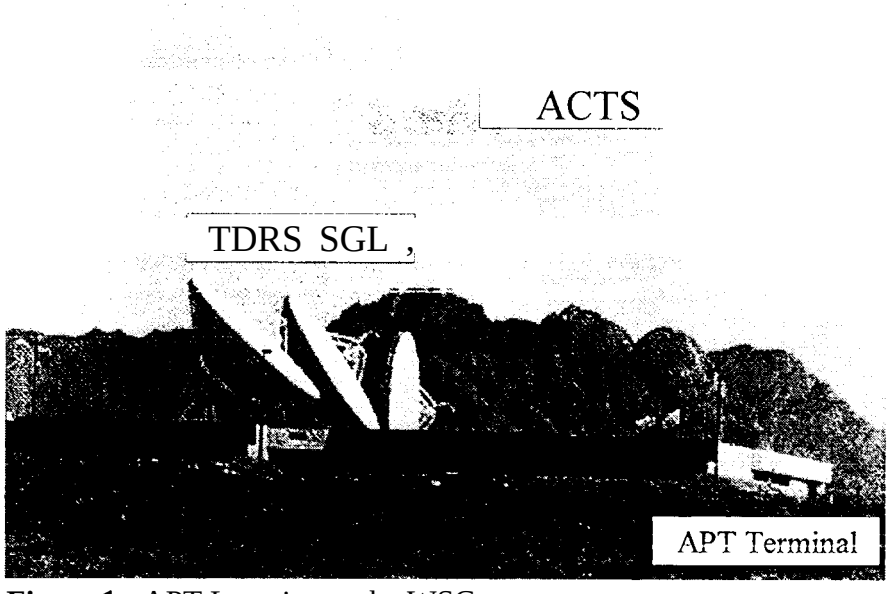


Figure 1 - APT Location at the WSC.

Differences from 1994 WSC Data Collection to the 1995 Data Collection

1. 1995 collection only at the STGT (Danzante)
2. APT and TDRS SGL antennas are within about ½ mile - APT 'to 1994 collection antenna approximately 3 miles
3. WSC measurements based on the AGC voltage (millivolts) readings from the TDRS SGL antenna system and not a separate system as in the Raindance data reported for 1994
4. Data from TDRS East (TDE) and TDRS West (TDW) provided; no data from spare satellites

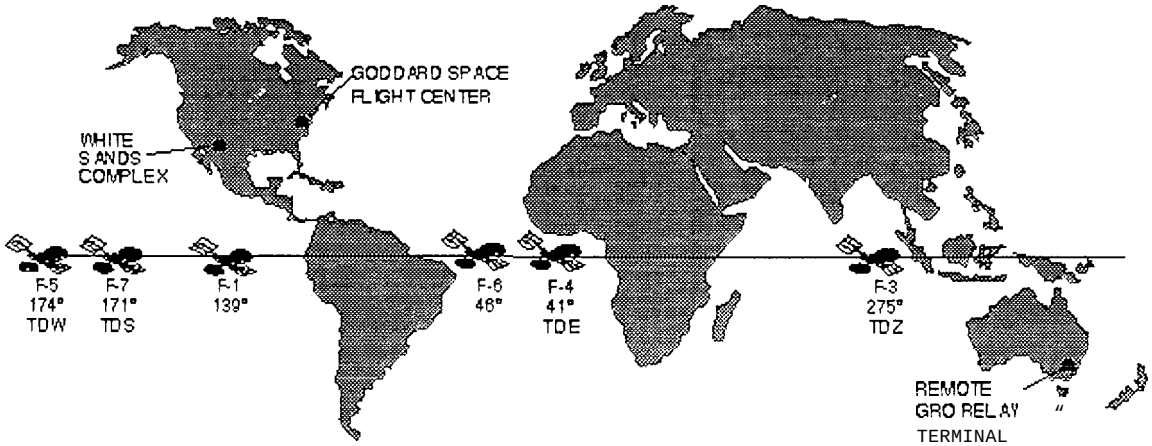


Figure 2- TDRS Constellation

Satellites			
Spacecraft	**Apparent Azimuth Angle**	**Apparent Elevation Angle**	**Operating Frequency**
TDRS East	103	12	13.7 GHz
TDRS West	257	11	13.7 GHz
ACTS	168	51	20/27 GHz

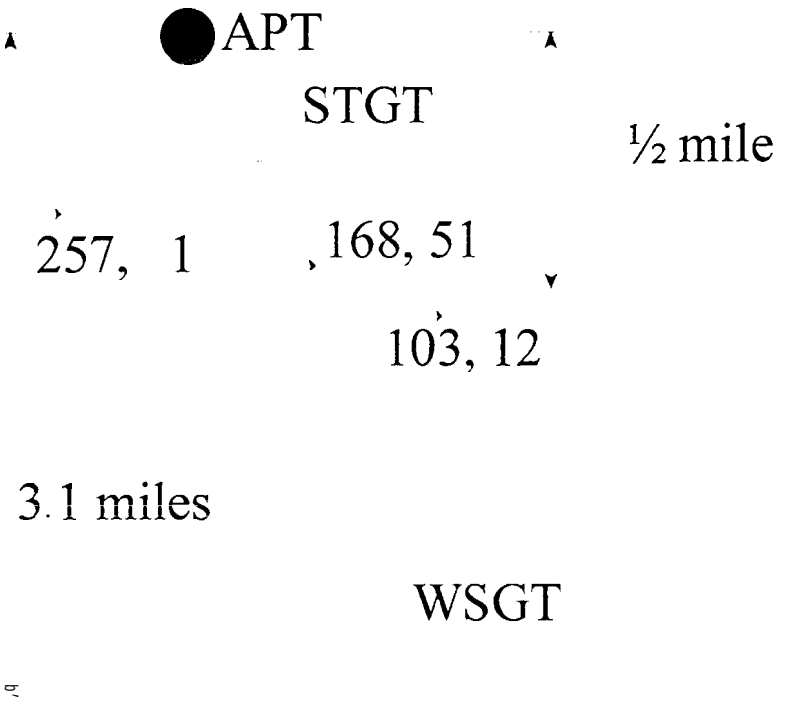
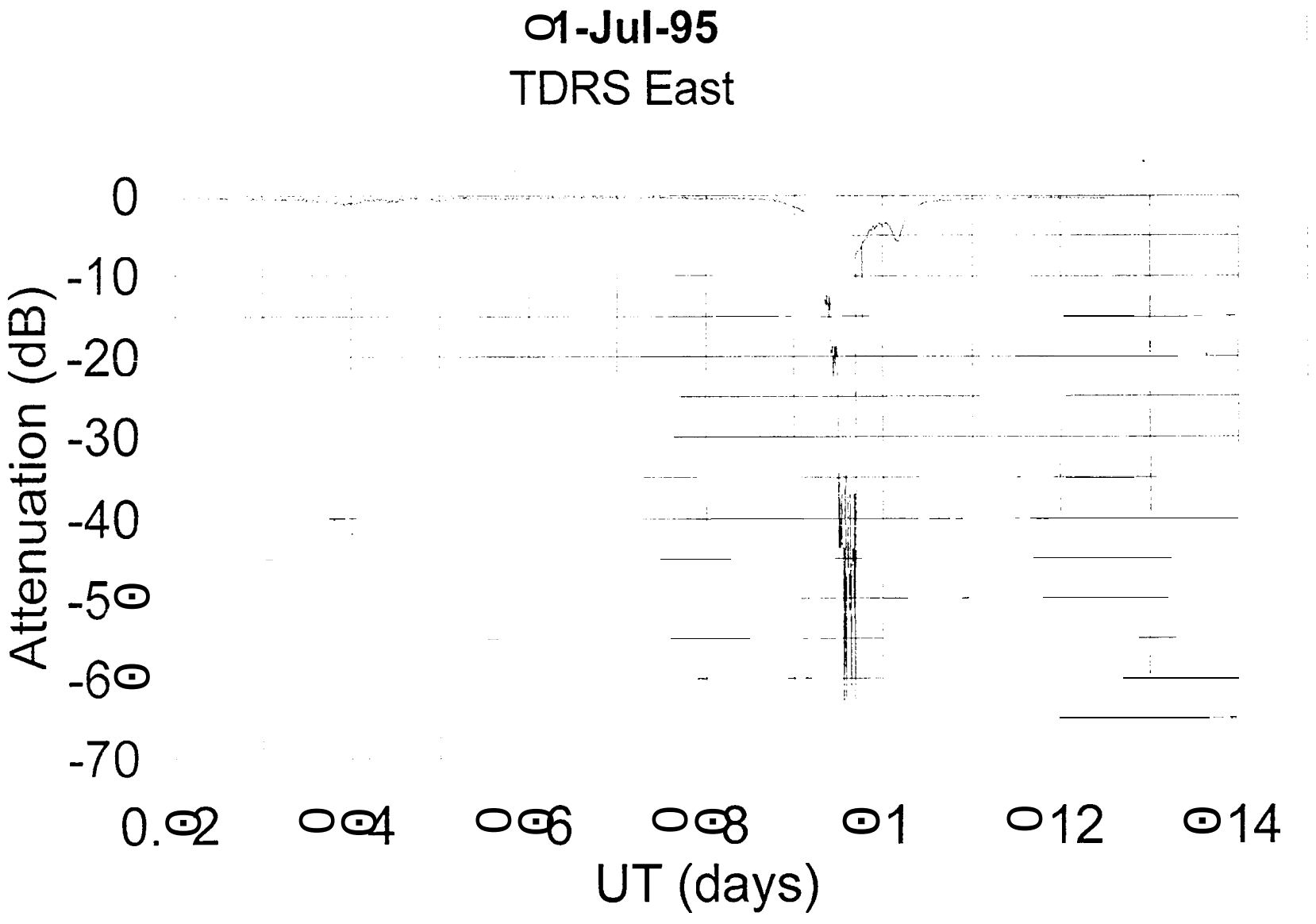
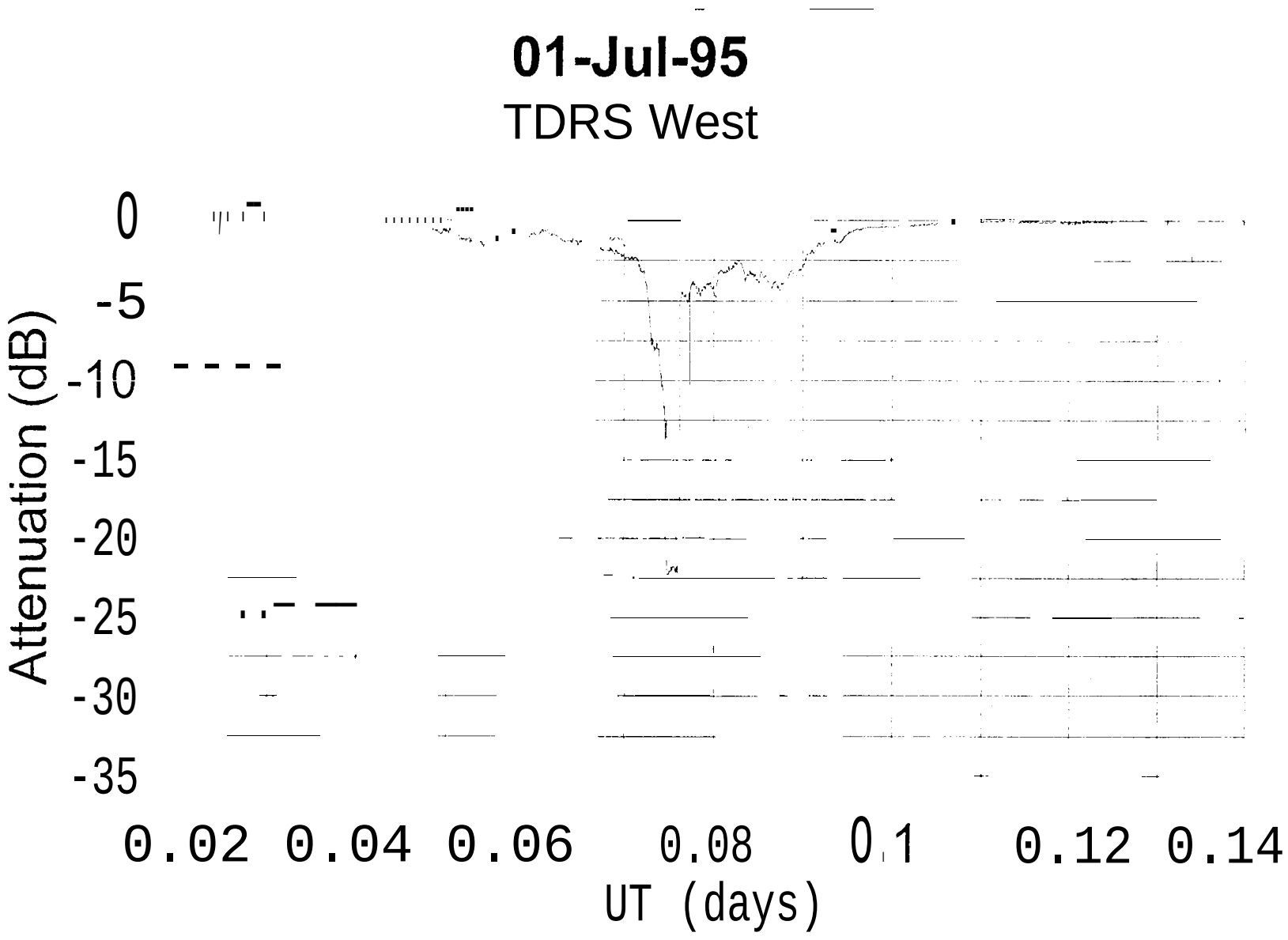
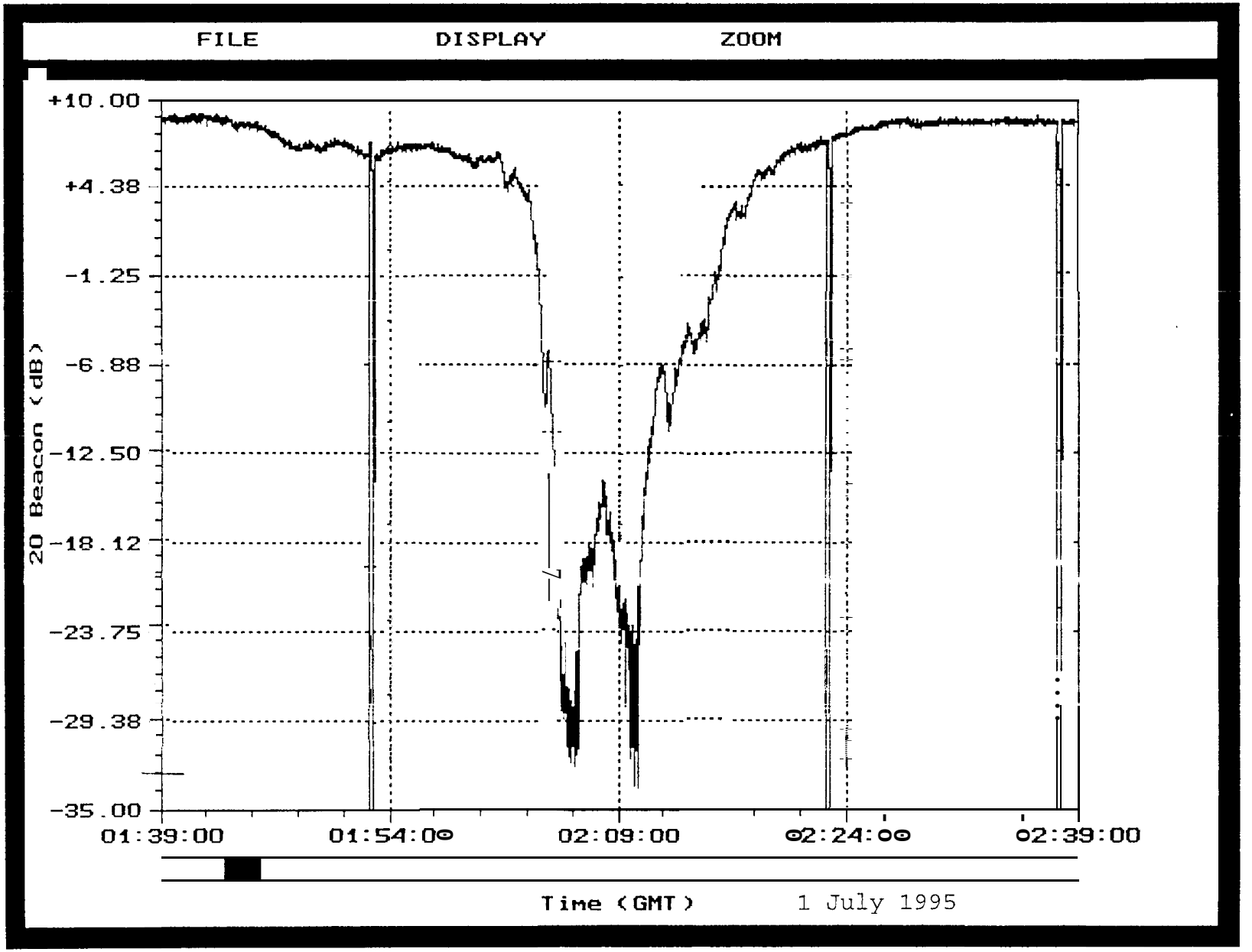
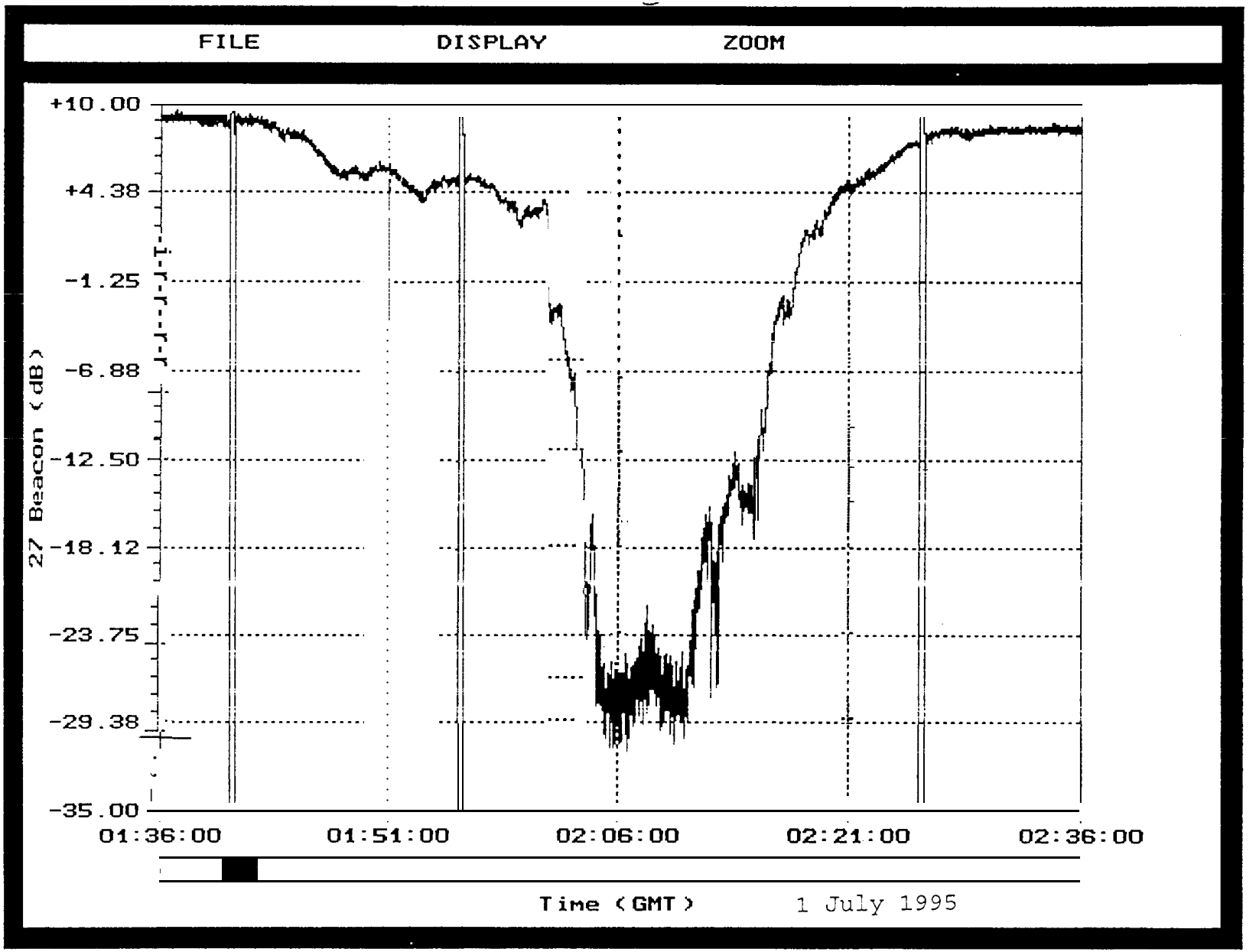


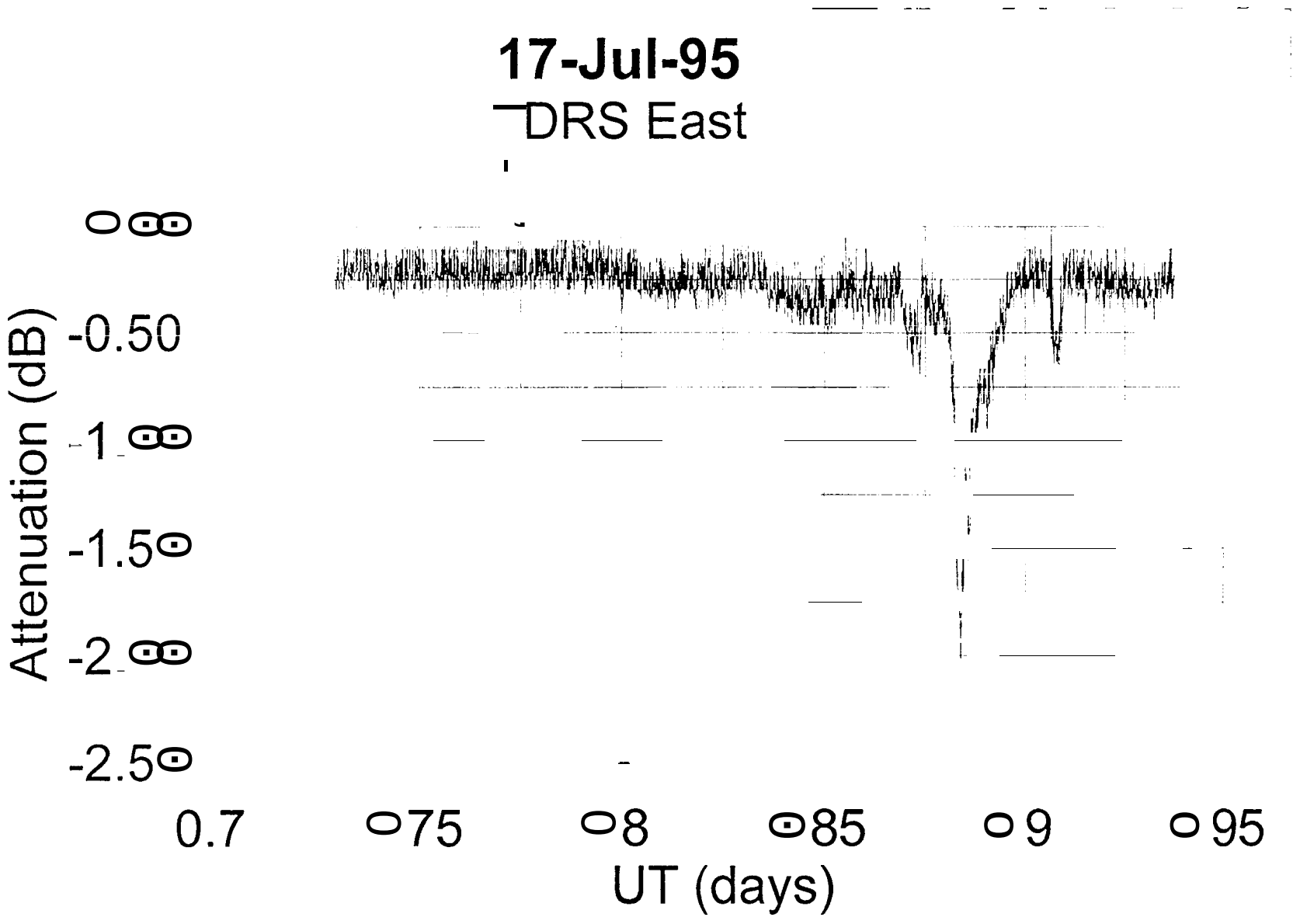
Figure 3 - Pointing Angles (Az, El) from data collection sites to the satellites.

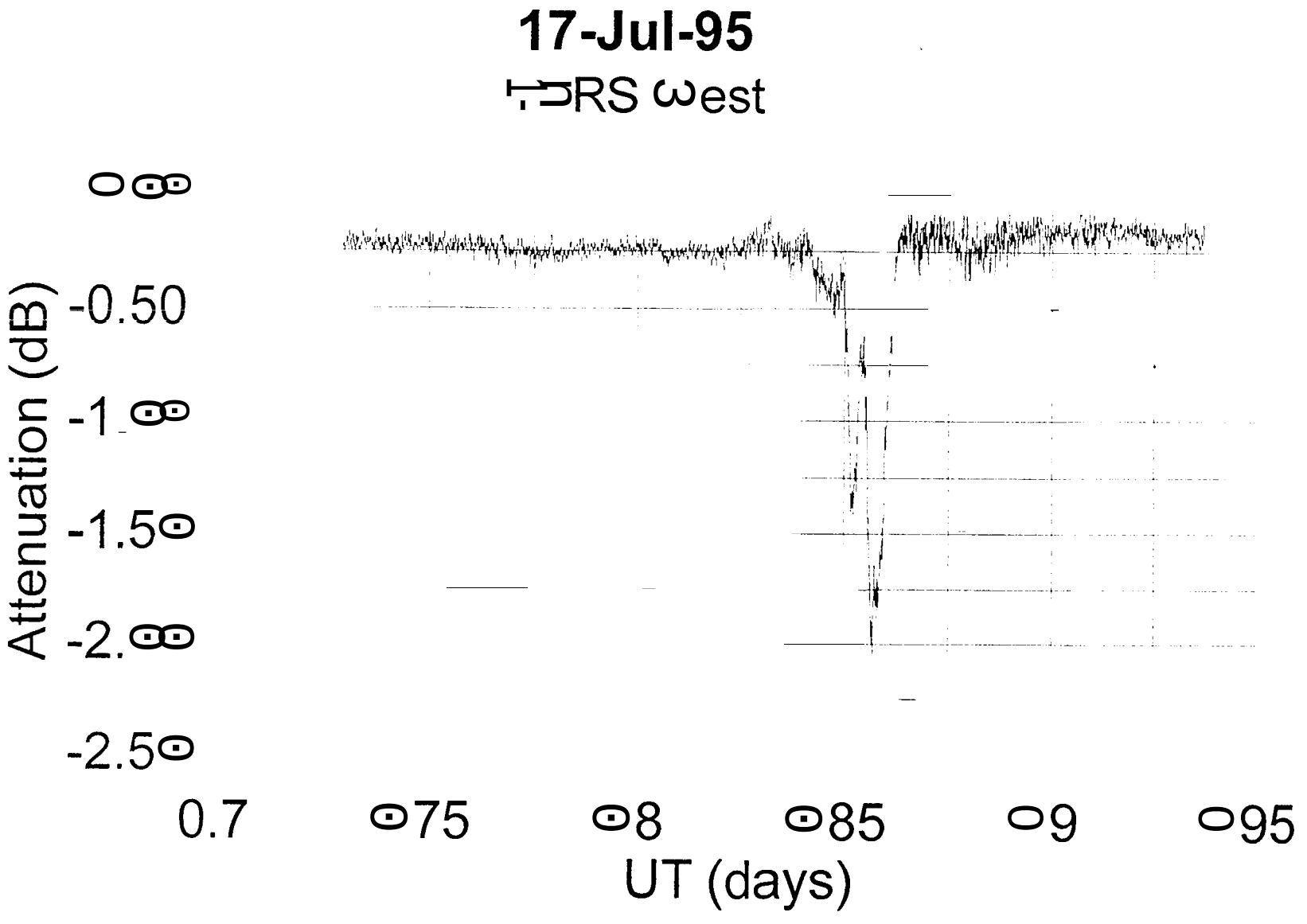

01-Jul-95
TDRS East
Attenuation (dB)
0
-10
-20
-30
-40
-50
-60
-70
0.02
0.04
0.06
0.08
0.1
0.12
0.14
UT (days)

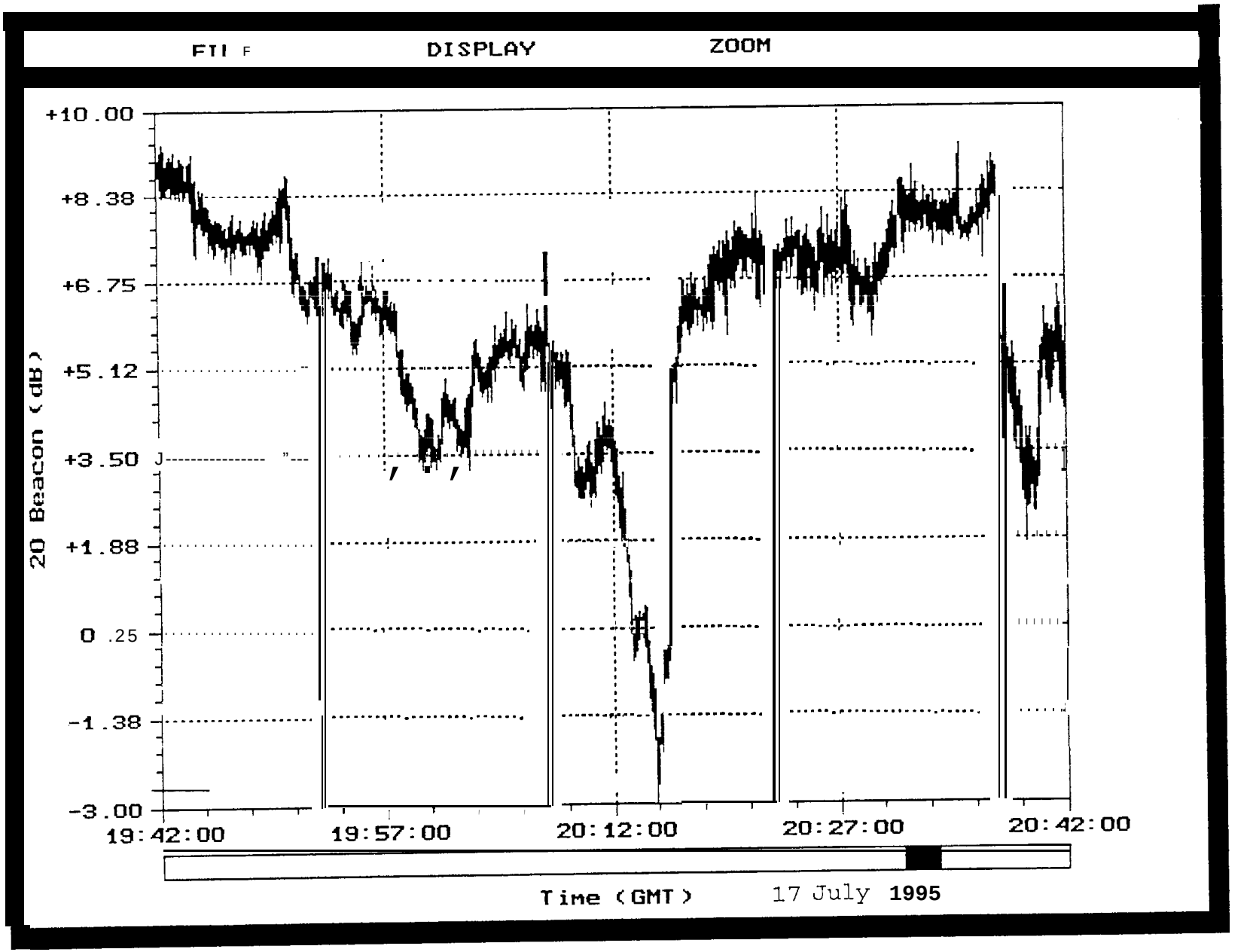

01-Jul-95
TDRS West
Attenuation (dB)
0
-5
-10
-15
-20
-25
-30
-35
0.02
0.04
0.06
0.08
0.1
0.12
0.14
UT (days)

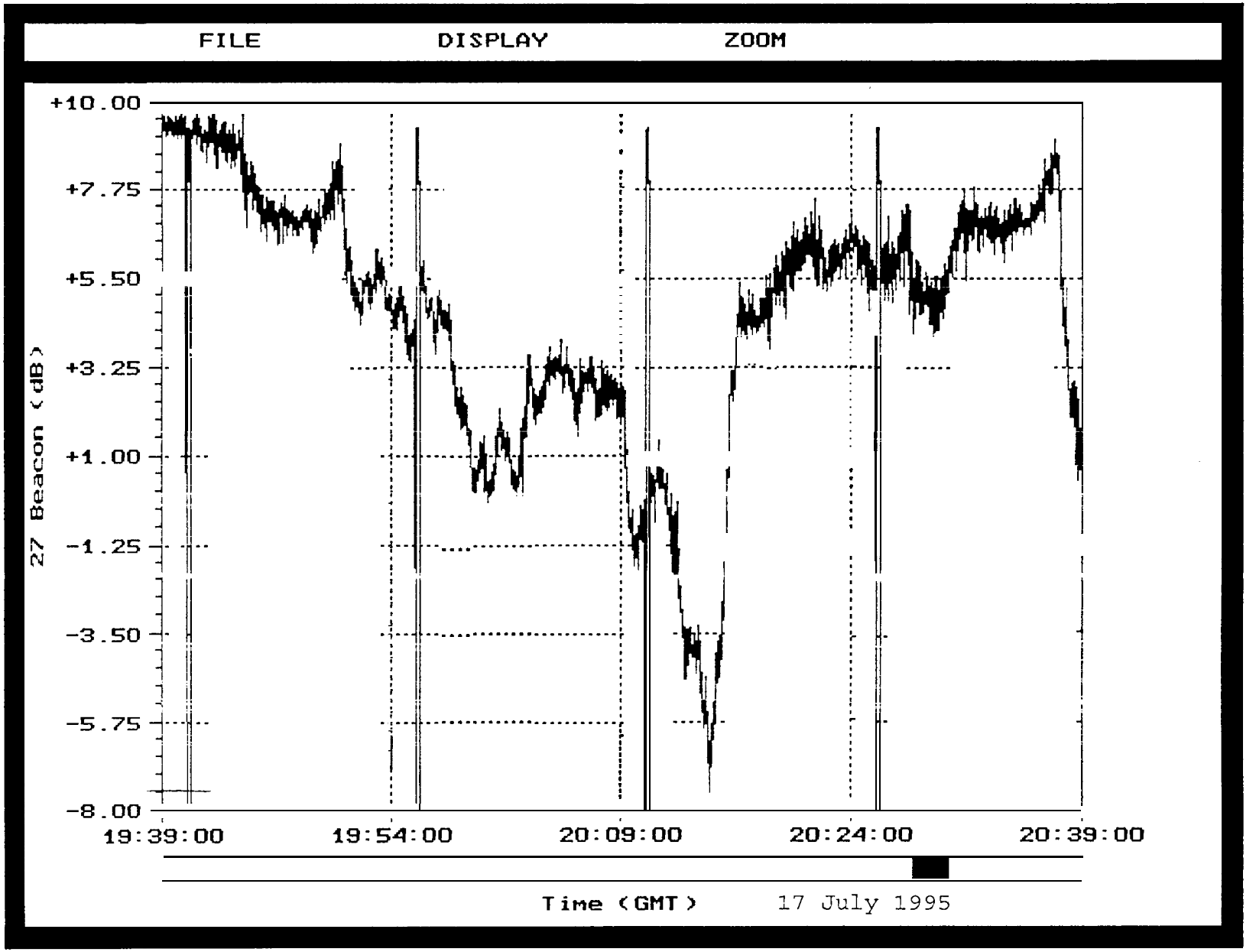

FILE
DISPLAY
ZOOM
+10.00
+4.38
-1.25
-6.88
-12.50
-18.12
-23.75
-29.38
-35.00
20 Beacon (dB)
01:39:00
01:54:00
02:09:00
02:24:00
02:39:00
Time (GMT)
1 July 1995


FILE
DISPLAY
ZOOM
+10.00
+4.38
-1.25
-6.88
-12.50
-18.12
-23.75
-29.38
-35.00
27 Beacon (dB)
01:36:00
01:51:00
02:06:00
02:21:00
02:36:00
Time (GMT)
1 July 1995


17-Jul-95
DRS East
Attenuation (dB)
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
0.7
0.75
0.8
0.85
0.9
0.95
UT (days)


17-Jul-95
TDRS West
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
Attenuation (dB)
0.7
0.75
0.8
0.85
0.9
0.95
UT (days)


FILE
DISPLAY
ZOOM
+10.00
+8.38
+6.75
+5.12
+3.50
+1.88
0.25
-1.38
-3.00
20 Beacon (dB)
19:42:00
19:57:00
20:12:00
20:27:00
20:42:00
Time (GMT)
17 July 1995


FILE
DISPLAY
ZOOM
+10.00
+7.75
+5.50
+3.25
+1.00
-1.25
-3.50
-5.75
-8.00
27 Beacon (dB)
19:39:00
19:54:00
20:09:00
20:24:00
20:39:00
Time (GMT)
17 July 1995

TDRS SGL Attenuation Measurements (January - August 1995)		
	Satellite	
Parameter	**TDRS East**	**. TDRS West**
Measured Peak Attenuation	44 dB	22 dB
Date	1-Jul-95	1-Jul-95
Minutes > 1 dB	212	181
Minutes > 3 dB	73	55
Minutes > 10 dB	5	4

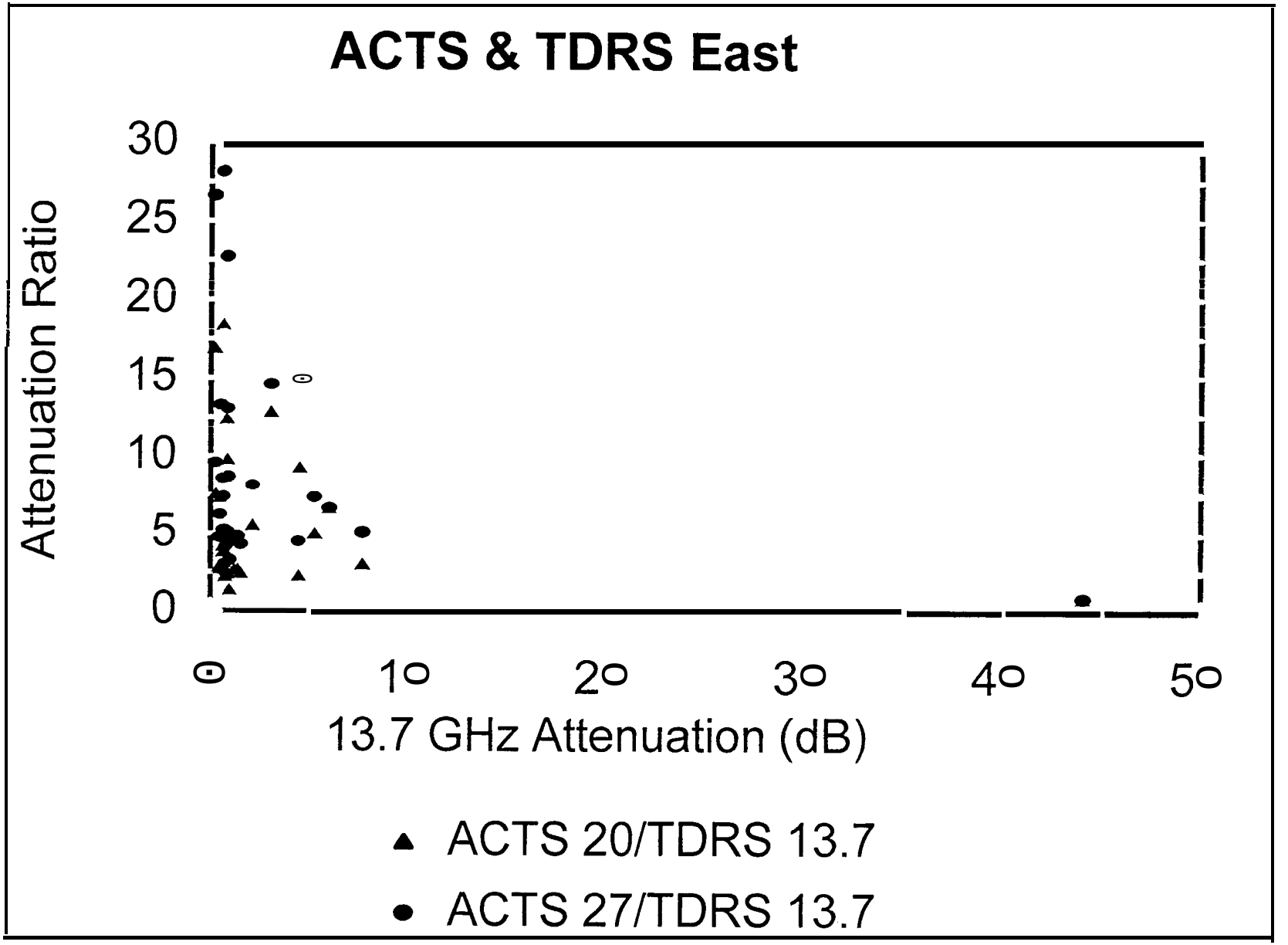


Figure 4 - Attenuation Ratios between ACTS and TDRS SGL

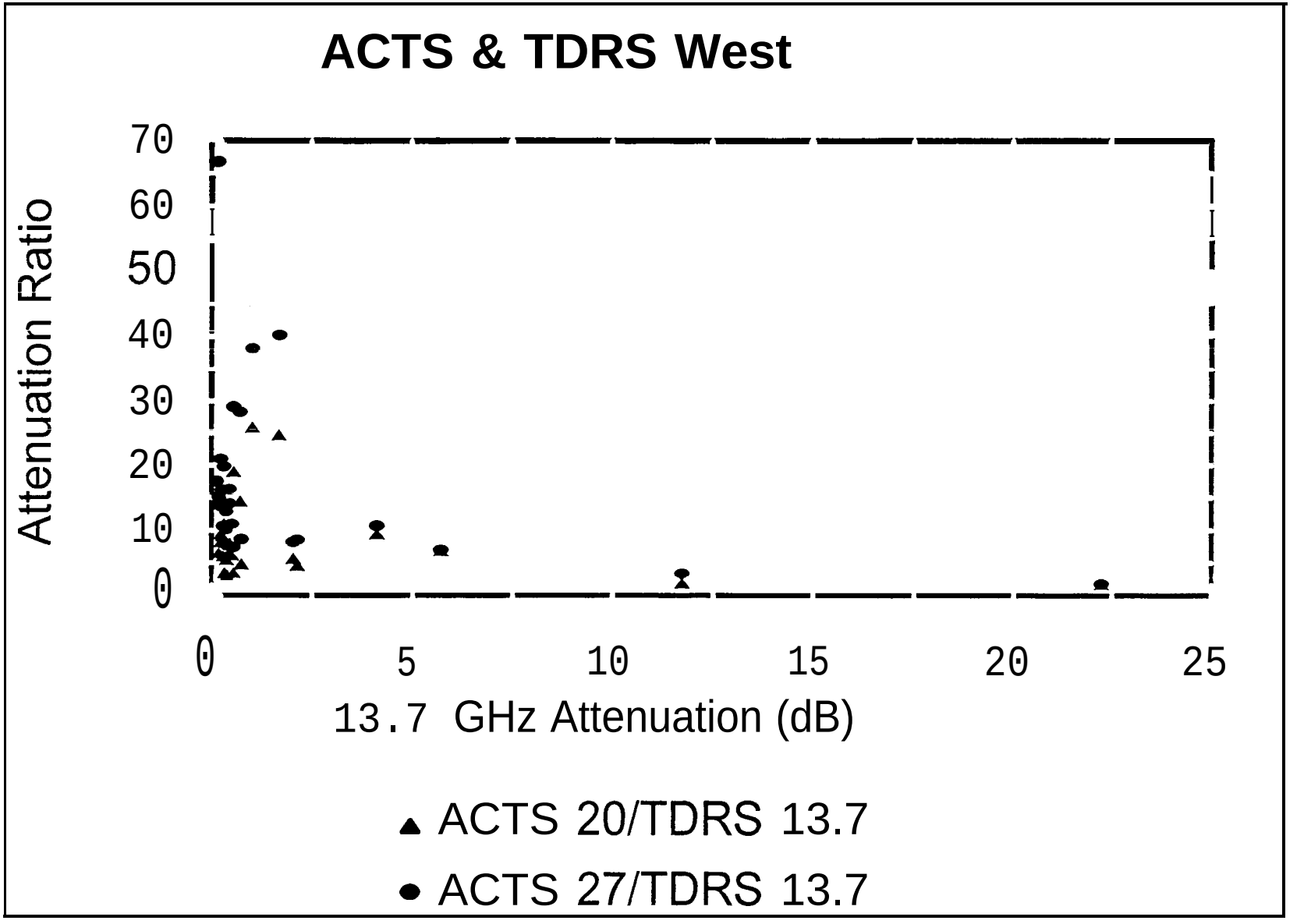


Figure 5- Attenuation Ratios between ACTS and TDRS SGL