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FINAL STS-11 (41-B) BEST ESTIMATE TRAJECTORY PRODUCTS:  
DEVELOPMENT AND RESULTS FROM THE FIRST CAPE LANDING MISSION

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Congratulations to the NASA, the flight crew, and all involved for the successful landing on Runway 15 at the Cape, an historical event!

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ABSTRACT

STS-11(41-B) post-flight data processing has been completed and the results published herein. The final reconstructed entry trajectory, as discussed in Section I, is BT11A12/UN=169750N. The final Extended BET, ST11BET/UN=274885C, merged this inertial file with an atmosphere (FLAIR11/UN=274885C) based on the LaRC LAIRS and National Weather Service data. Section II discusses the various atmospheric sources available for this flight. Aerodynamic BET generation and plots from this file are presented as Section III. The AEROBET for STS-11 (41-B) is on physical reel NL0429 (back-up on NF0349). MMLE input files generated are NF0364 (based on IMU2 data) and NF0422 (replacing the IMU data with rectified ACIP measurements, to include RGA yaw rate data in that channel due to the ACIP data loss during entry). This development, as well as a definition of the major maneuvers effected, is given in Section IV.

Physical constants, including spacecraft mass properties; final residuals from the reconstruction process; trajectory parameter listings; and an archival section are included as appendices herein. Epoch and event times are summarized below for later referral:

EPOCH February 11, 1984 11<sup>h</sup>29<sup>m</sup>40<sup>s</sup>.0 (41380<sup>s</sup>.0) GMT, h ~ 827 kft

<u>Event</u>	<u>sec from Epoch</u>
main gear deployment	2757
main gear touchdown (WOW)	2774
nose gear touchdown (WONG)	2787
stop time	2842

It should be noted that the AEROBET, due to insufficient OI data, does not start until 400 seconds from epoch at an altitude of h ~672 kft.

## I. Entry Trajectory Reconstruction

### I.a. Dynamic data

IMU2 was selected as the dynamic data source for the STS-11 entry reconstruction. Figure I-1 shows the dynamic data time history over five hundred(500) second intervals starting at 500 seconds (~624 kft). Body axes rates and accelerations derived from the IMU2 measured  $\Delta V_{M50}$  and quaternions are plotted.

In terms of the total sensed  $\Delta V$  magnitude, the tri-redundant IMUs agreed very well. IMU1 and IMU2 agreed to within 0.08 fps while IMU3 was within 0.04 fps of the other two. Mid-value selection (percentage of occurrences) for the various units are shown in the following two tables:

#### Accelerometer Comparisons Based on 2825 Points

	<u>Percentage mid-value measurement</u>		
	<u>IMU1</u>	<u>IMU2</u>	<u>IMU3</u>
$\Delta V_{X_{M50}}$	68	30	2
$\Delta V_{Y_{M50}}$	31	41	28
$\Delta V_{Z_{M50}}$	60	29	11

#### Gyro Comparisons Based on 2823 Points

	<u>Percentage mid-value measurement</u>		
	<u>IMU1</u>	<u>IMU2</u>	<u>IMU3</u>
Euler $\psi$	15	39	46
Euler $\theta$	12	58	30
Euler $\phi$	28	59	13
Total angle, $\Gamma$	17	21	62
Total angular rate, $\Gamma$	33	36	31

No clear choice is evidenced by these results. Arbitrarily, IMU2 was selected. Several data gaps were detected on the Operational Instrumentation (OI) recorded data. There was only one(1)

major gap of ~10 seconds which affected all three(3) IMUs in both the  $\Delta V$ s and quaternions. This gap is in the interval from  $\sim 1064^S$  to  $\sim 1074^S$  from epoch, corresponding to an altitude interval  $329 \text{ kft} < h < 334 \text{ kft}$ .

#### I.b. Tracking Data

Tracking coverage for STS-11 consisted of four S-band and 6 C-band passes. Since cine-theodolite data were not available during the terminal phase of entry, the end conditions for the reconstructed trajectory were improved by utilizing pseudo altimeter data during rollout and pseudo Doppler data after stop on Runway 15 at KSC. Tracking coverages are depicted in Figures I-2 through I-4. Figure I-2 shows the entire ground track for STS-11 with stations (complexes) as noted. Times and corresponding altitudes at  $500^S$  increments along the track are given. Detailed tracking coverage, with the maximum elevation angle ( $\gamma_{MAX}$ ) obtained at each station, is given in Figure I-3. The tracking arcs actually used for trajectory reconstruction are shown via dashed line "rays" from the stations to the ground track. Pertinent times and altitudes are also given. An expanded view of the final approach and landing segment, which shows all six(6) Florida tracking stations, is given as Figure I-4. Acronyms and locations for the STS-11 trackers are given in Table I.

#### I.c. Reconstruction Results

The final BET solution for STS-11, BT11A12, is presented in Table II. For comparison, the initial estimate from the onboard navigation system, the JSC/TRW estimate and a state-only ENTREE estimate are also given. Comparison of the two ENTREE estimates shows that a significant improvement in the fit to the tracking data is achieved by expanding the solution set to include gyro biases and accelerometer scale factors. Furthermore, the initial state and attitude for the final solution are in very close agreement with the state only solution, while the estimates for the instrument parameter errors are in accord with the  $1\sigma$  performance specification levels of 0.025 deg/hr and 100 ppm. The weighted fit statistics for BT11A12, based on 5921 observations, are  $\mu_w = -0.076$  and  $\mu_w = 1.313$ . A summary of the residuals, by station and data type, is given in Table III. Plots of the final residuals are given as Appendix B.

From a tracking perspective there were several "firsts" on STS-11 in addition to the landing at Cape Kennedy. This is the first flight for which high altitude tracking was available from Kwajalein; the first flight for which every trajectory segment covered by a C-band pass was also covered or immediately preceded by an S-band pass; the first flight for which all available C-band measurements had been corrected for both light time and refraction at the stations. What results is a unique opportunity to evaluate the overall consistency which exists in the station measurements and/or point out possible limitations in the mathematical models used to process these measurements. For this appraisal much information is available from the composite post-fit residuals given in Figures I-5 (Range, Doppler), I-6 (Azimuth, Elevation) and I-7 (X-angle, Y-angle). Symbols utilized to identify stations are as follows:

<u>SYMBOL</u>	<u>TRACKER</u>
○	GWMS
□	KMTC
◇	HAWS
△	KPTC
▷	MILS
◁	MLXS
◐	MLMC
◑	MLAC
◒	PATC
◓	CNVC

Since the only data type common to all stations (both C-and S-band) is range, Figure I-5a provides the best single source of information. The S-band range residuals are easy to identify. They show very little scatter and are near-zero mean (GWMS, HAWS, MILS, MLXS). During the lower altitude segment ( $t > 2000^s$ ), the C-band Florida stations are consistent with each other and with the S-band Florida stations. In the upper altitude segment, however, the residuals from the C-band Hawaii station KPTC are biased ( $\mu = + 68$  ft) whereas those from the S-band Hawaii station HAWS are not ( $\mu = -5$  ft). Both Hawaii stations

have approximately the same coverage. Although a fixed tracking point on the Shuttle is used for the S-band measurements and an assumed center-of-gravity tracking point is used for the C-band measurements, simulations have shown that the relative bias would be even worse if the C-band tracking point were assumed to be the point on the Shuttle closest (in slant range) to the station. Also in the upper altitude segment, the range residuals for Kwajalein (KMTC) have a signature resembling that for a station longitude error. The "equivalent" longitude error in this case would be  $\sim 5 \times 10^{-4}$  degrees. These inconsistencies, along with several others which can be identified by inspection of Figures I-5 through I-7, are considered significant, however, only in the sense that further investigation is warranted. The effects of these incompatibilities on the overall accuracy of the BET are relatively minor.

Comparisons of the final BET position and velocity after rollout on Runway 15 versus post-landed survey values are given below:

END CONDITIONS AT VEHICLE STOP (Runway #15 Coordinates)

	<u>Survey</u>	<u>BT11A12</u>
X, ft	+12737	+12764
Y, ft	0	-16
$h-h_{RW}$ , ft	+16	+16
$\dot{X}$ , fps	0	-0.00
$\dot{Y}$ , fps	0	+0.03
$\dot{h}$ , fps	0	+0.03

Figure I-8 presents plots of the BET during rollout on Runway 15. Surveyed values are depicted thereon. Vehicle stop occurs 2842 seconds after epoch. \



TYPE	STATION NO. NAME	LATITUDE (GEOD.) (DEG)	LONGITUDE (DEG)	ALT (ABOVE REF.) (FT)	MODULUS OF REFRACTION	SCALE HEIGHT (M)
S-BAND. N-S	1 GWAS	13.31063	144.73681	380.4100	336.	7193.
C-BAND. TPO-18	2 KMTC	8.71950	167.71837	91.5700	N/A	N/A
S-BAND. N-S	3 HAWS	22.12624	200.33484	3739.3400	309.	6624.
C-BAND. FPO-14	4 KPTC	21.57210	201.73343	931.4000	N/A	N/A
S-BAND. N-S	5 MILS	28.50827	279.30663	-178.6400	337.	7282.
S-BAND. E-W	6 MLXS	28.50831	279.30727	-183.1400	337.	7283.
C-BAND. MCBR	7 MLMC	28.62609	279.31723	-174.6700	N/A	N/A
C-BAND. FPO-14	8 MLAC	28.42486	279.33564	-172.0100	N/A	N/A
C-BAND. FPO-14	9 PATC	28.22655	279.40075	-160.3700	N/A	N/A
C-BAND. FPS-16	10 CNVC	28.48176	279.42353	-163.9100	N/A	N/A

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Table I. STS-11 station locations and refraction data.

EPOCH: 2/11/84 11<sup>h</sup>29<sup>m</sup>40<sup>s</sup> (41380<sup>s</sup>) GMT

DATA TYPES: S-band, 4 radars (GWMS, HAWS, MILS, MLXS)  
 C-band, 6 radars (KMTC, KPTC, MLMC, MLAC, PATC, CNVC)  
 Pseudo Altimeter (Post WONG); Pseudo Doppler (Post STOP)

3° elevation angle constraint on GWMS, 5° constraint all other stations

Parameter	Initial Estimate, NAV	JSC/TRW	BT11M27 <sup>(1)</sup>	Final Solution, BT11A12 <sup>(2)</sup>
V <sub>R</sub> , fps	23853.7	23851.6	23852.8	23852.403
γ <sub>R</sub> , deg	-0.733	-0.731	-0.730	-0.72866849
ψ <sub>R</sub> , deg	59.616	59.617	59.616	59.616182
h <sub>D</sub> , ft	826187.	827955.	827358.	827319.02
φ <sub>D</sub> , deg	-0.816	-0.816	-0.818	-0.81740974
λ, deg	145.547	145.549	145.549	145.54944
ψ, deg	56.774	see	56.767	56.766296
θ, deg	-0.194	Appendix	-0.231	-0.22334367
φ, deg	-1.711	A	-1.744	-1.7766989
μ <sub>w</sub>	—	—	-1.204	-0.076
σ <sub>w</sub>	—	—	2.831	1.313

(1) state only

(2) state, PQR biases, accelerometer scale factors:  $\left\{ \begin{array}{l} \Delta P, \Delta Q, \Delta R \text{ (deg/hr)} = -0.007, +0.024, +0.029 \\ \Delta SF_X, \Delta SF_Y, \Delta SF_Z \text{ (ppm)} = -57, +107, -28 \end{array} \right\}$

Table II. STS-11 solution and comparisons.

## OBSERVATION STATISTICS BASED ON FINAL STATE

STATION NO.	OBSERVATION NAME	OBSERVATION TYPE	OBSERVATIONS ACCEPTED	AVERAGE WEIGHT. RES.	AVERAGE RESIDUAL	STANDARD STAND. DEV.	WEIGHTED STAND. DEV.
0		ALTIMETER	96 OF 96	.73033868E-01	.35056257E+00	.10788663E+01	.22476381E+00
1	GWMS RANGE		121 OF 121	.22191336E-01	.10367964E+00	.82544423E+01	.65551315E+00
1	GWMS DOPPLER		120 OF 120	-.35766745E-01	-.10390997E-01	.23748012E+00	.72575395E+00
1	GWMS X-ANGLE		90 OF 90	-.21597636E+01	-.11195317E+00	.45838635E-01	.74376917E+00
1	GWMS Y-ANGLE		121 OF 121	-.28409012E+00	-.31880855E-02	.89597316E-02	.75162945E+00
2	KMTC RANGE		47 OF 47	.93401684E+00	.28036240E+02	.90062395E+02	.29759070E+01
2	KMTC AZIMUTH		51 OF 51	-.25931278E+00	-.29715056E-02	.30876663E-02	.26944972E+00
2	KMTC ELEVATION		51 OF 51	.15479883E-01	-.54778221E-04	.38212358E-02	.27649570E+00
3	HAWS RANGE		215 OF 215	-.77206713E+00	-.46394344E+01	.46688203E+01	.71765596E+00
3	HAWS DOPPLER		214 OF 214	.22052814E-01	-.26782099E-01	.47112651E+00	.13321772E+01
3	HAWS X-ANGLE		186 OF 186	.10068638E+01	.12913942E-01	.16577370E-01	.13059752E+01
3	HAWS Y-ANGLE		188 OF 188	-.18122764E+01	-.21037164E-01	.50178626E-02	.43661808E+00
4	KPTC RANGE		178 OF 178	.22356350E+01	.68020127E+02	.44279873E+02	.14490621E+01
4	KPTC AZIMUTH		194 OF 194	-.34742067E+00	-.39811477E-02	.29716843E-02	.25932837E+00
4	KPTC ELEVATION		195 OF 195	-.17238884E+00	-.28919419E-02	.68099052E-02	.40153838E+00
5	MILS RANGE		87 OF 87	-.61192336E+00	-.63457895E+01	.91545731E+01	.86282461E+00
5	MILS DOPPLER		87 OF 87	.55878612E-01	.56473429E-01	.46379225E+00	.46146859E+00
5	MILS X-ANGLE		88 OF 88	-.79287678E+00	-.10320065E-01	.93016046E-02	.73248011E+00
5	MILS Y-ANGLE		87 OF 87	-.23830413E+00	-.27316631E-02	.52563884E-02	.45851198E+00
6	MLXS RANGE		134 OF 134	.13794351E+00	.14070812E+01	.76156962E+01	.74940709E+00
6	MLXS DOPPLER		133 OF 133	.10473481E+00	.10460634E+00	.67109283E+00	.67061623E+00
6	MLXS X-ANGLE		133 OF 133	-.30548782E+00	-.35034409E-02	.28408932E-01	.24289685E+01
6	MLXS Y-ANGLE		134 OF 134	.11716855E+01	.13467238E-01	.28998803E-01	.25281167E+01
7	MLMC RANGE		262 OF 262	.80891791E+00	.24399553E+02	.30132794E+02	.99447191E+00
7	MLMC AZIMUTH		283 OF 283	.65373696E+00	.74912737E-02	.17702478E-01	.15448326E+01
7	MLMC ELEVATION		281 OF 281	-.14220437E+00	-.15437285E-02	.21267293E-01	.16846004E+01
8	MLAC RANGE		247 OF 247	.35944011E+00	.10913265E+02	.24664573E+02	.81224351E+00
8	MLAC AZIMUTH		258 OF 258	.17833457E-01	.20435636E-03	.69591595E-02	.60730123E+00
8	MLAC ELEVATION		258 OF 258	-.99584781E-01	-.12877018E-02	.54329036E-02	.43509865E+00
9	PATC RANGE		155 OF 155	-.86286808E+00	-.26047969E+02	.16972274E+02	.56261170E+00
9	PATC AZIMUTH		175 OF 175	-.25817998E+00	-.29585246E-02	.57052208E-02	.49787444E+00
9	PATC ELEVATION		175 OF 175	-.19566834E+00	-.25394458E-02	.39129900E-02	.29990098E+00
10	CNVC RANGE		238 OF 238	-.50503732E+00	-.15165006E+02	.33024185E+02	.10884045E+01
10	CNVC AZIMUTH		258 OF 258	-.13255118E+01	-.15189247E-01	.98761883E-02	.86186001E+00
10	CNVC ELEVATION		258 OF 258	.17572026E+00	.18044956E-02	.11837586E-01	.87400896E+00
17	PSBV DOPPLER		41 OF 41	-.51613733E+00	-.15484120E+00	.62692036E-01	.20897345E+00
18	PSBN DOPPLER		41 OF 41	-.14229920E+00	-.42689760E-01	.58787790E-01	.19595930E+00
19	PSBE DOPPLER		41 OF 41	-.40330040E+00	-.12099012E+00	.59687282E-01	.19895761E+00

TOTAL WEIGHTED FIT STATISTICS--- NOBS = 5921 WGT. MEAN = -.75768614E-01 WGT. STD. DEV. = .13125790E+01

Table III. STS-11 residual summary.

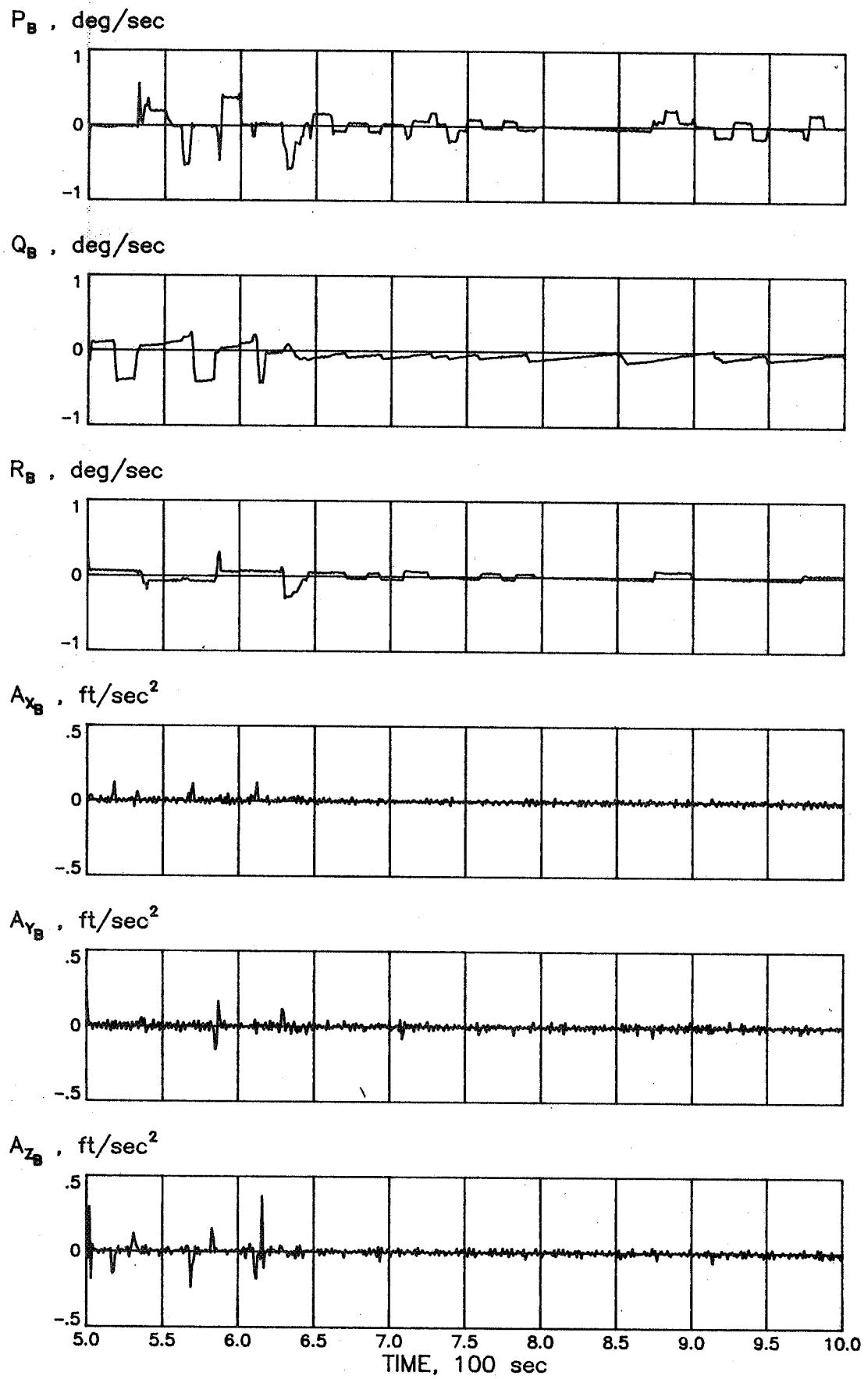
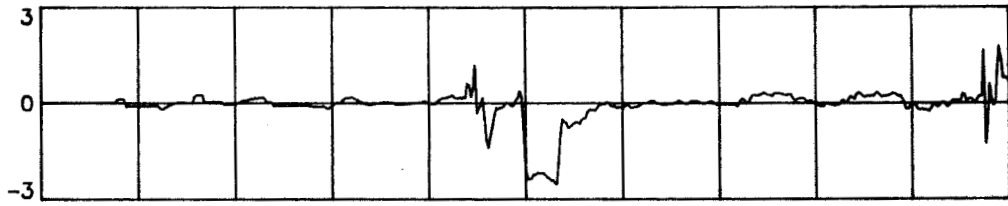
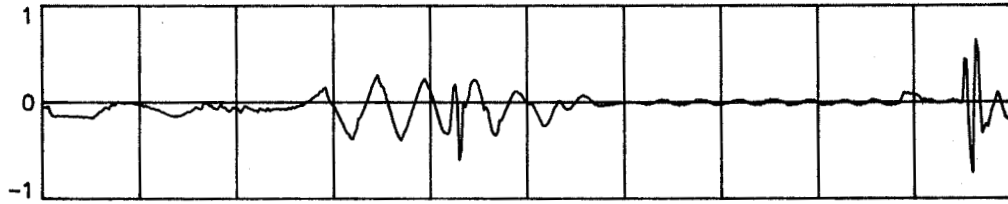


Figure I-1. STS-11 Dynamic data , IMU 2

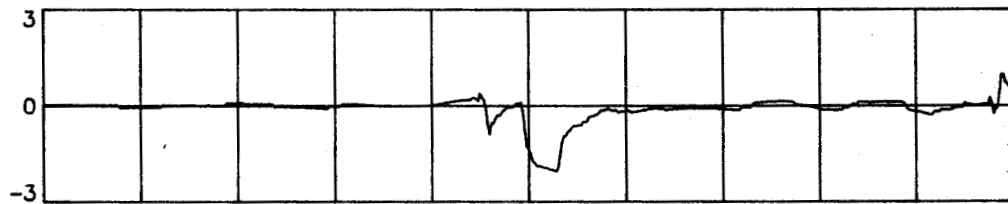
$P_B$ , deg/sec



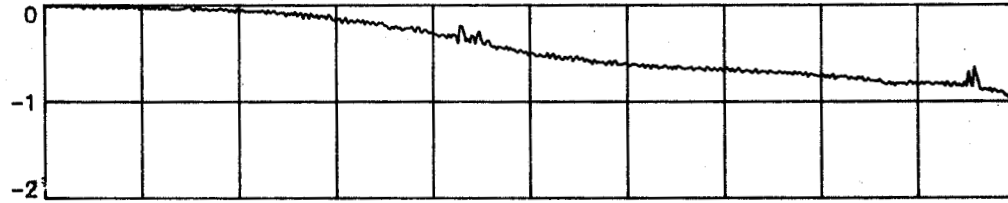
$Q_B$ , deg/sec



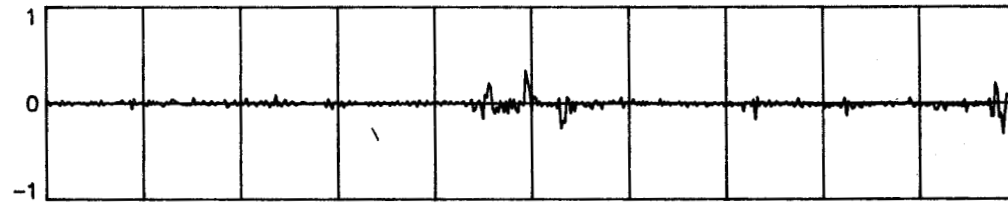
$R_B$ , deg/sec



$A_{XB}$ , ft/sec<sup>2</sup>



$A_{YB}$ , ft/sec<sup>2</sup>



$A_{ZB}$ , ft/sec<sup>2</sup>

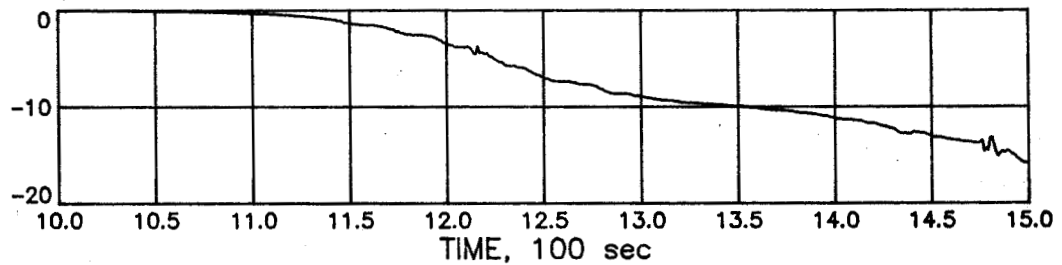


Figure I-1. (continued)

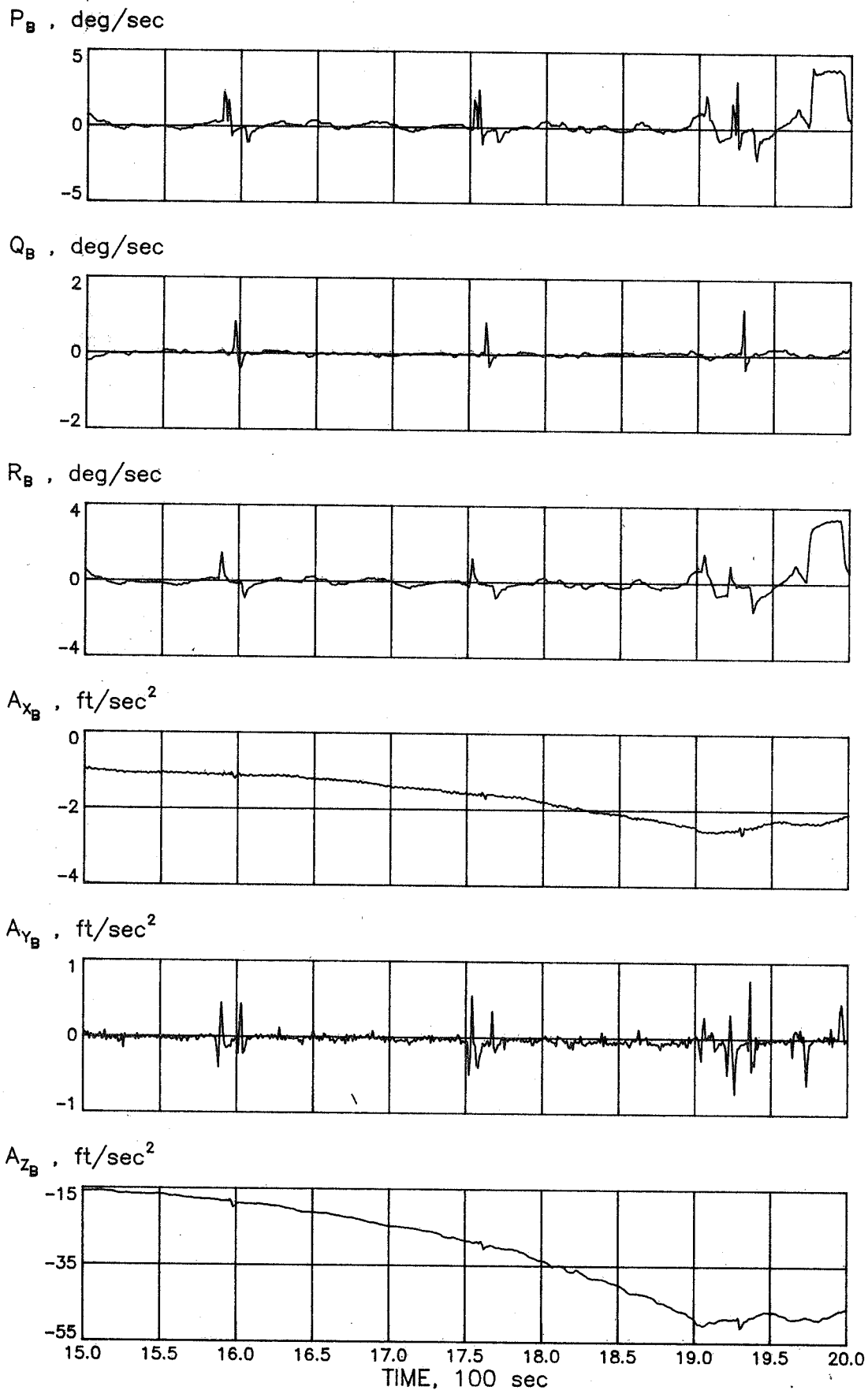
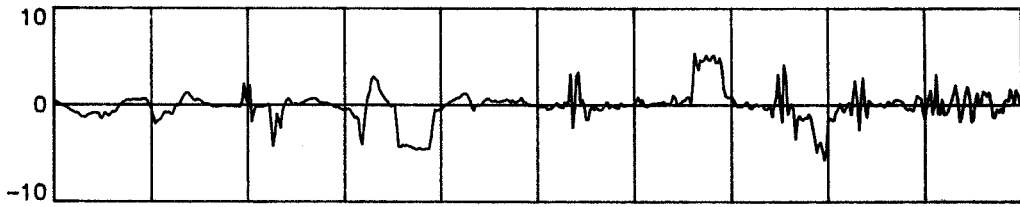


Figure I-1. (continued)

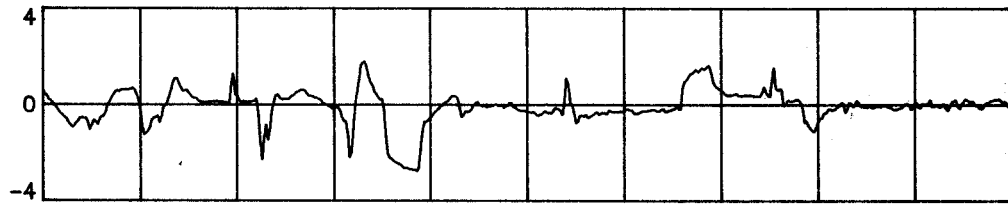
$P_B$ , deg/sec



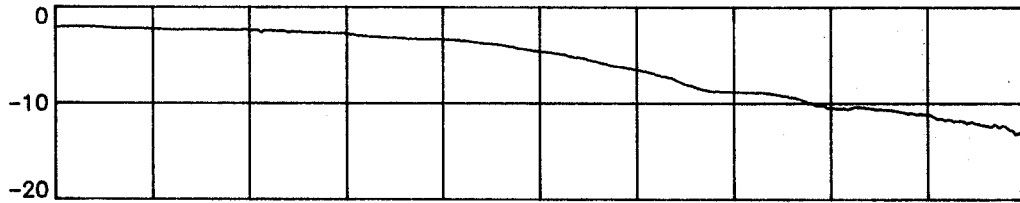
$Q_B$ , deg/sec



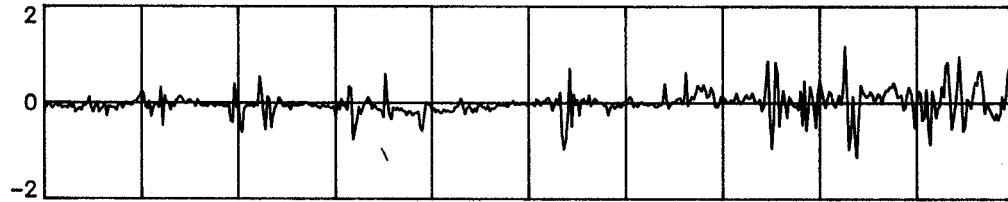
$R_B$ , deg/sec



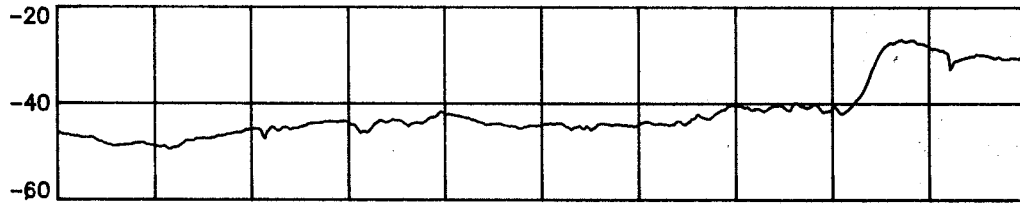
$A_{XB}$ , ft/sec<sup>2</sup>



$A_{YB}$ , ft/sec<sup>2</sup>



$A_{ZB}$ , ft/sec<sup>2</sup>



20.0 20.5 21.0 21.5 22.0 22.5 23.0 23.5 24.0 24.5 25.0  
TIME, 100 sec

Figure I-1. (continued)

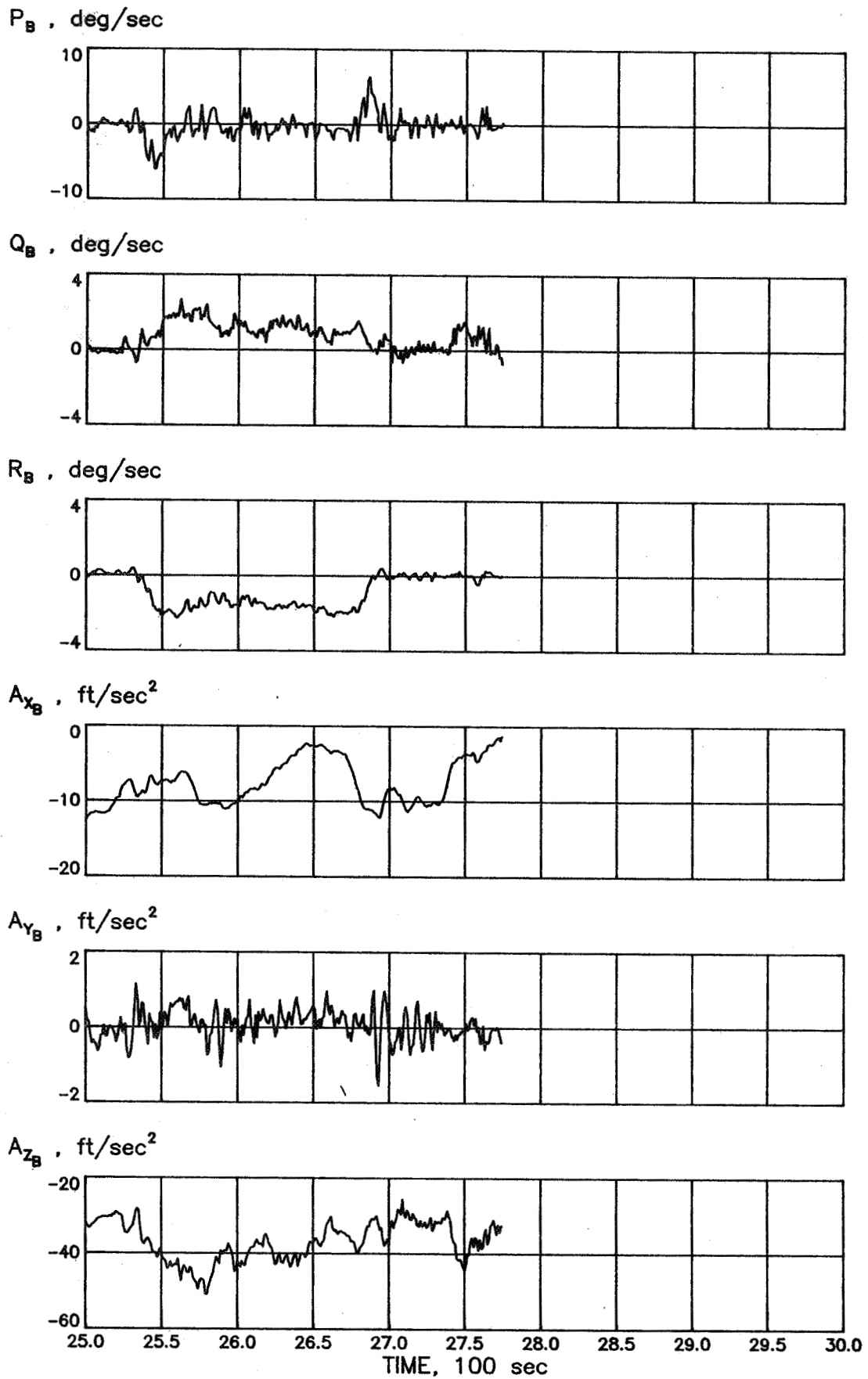


Figure I-1. (concluded)



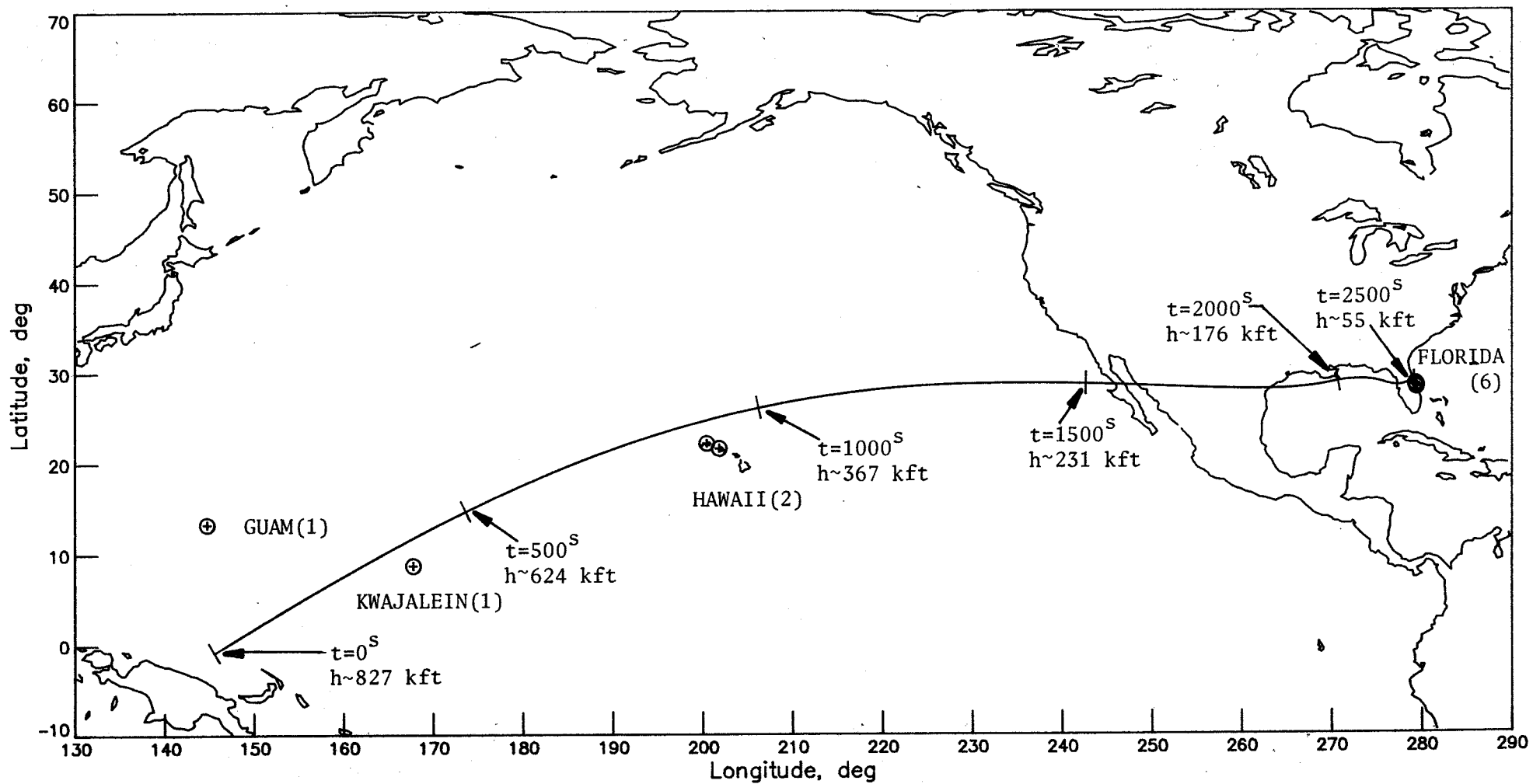


Figure I-2. STS-11 ground track from epoch to touchdown.

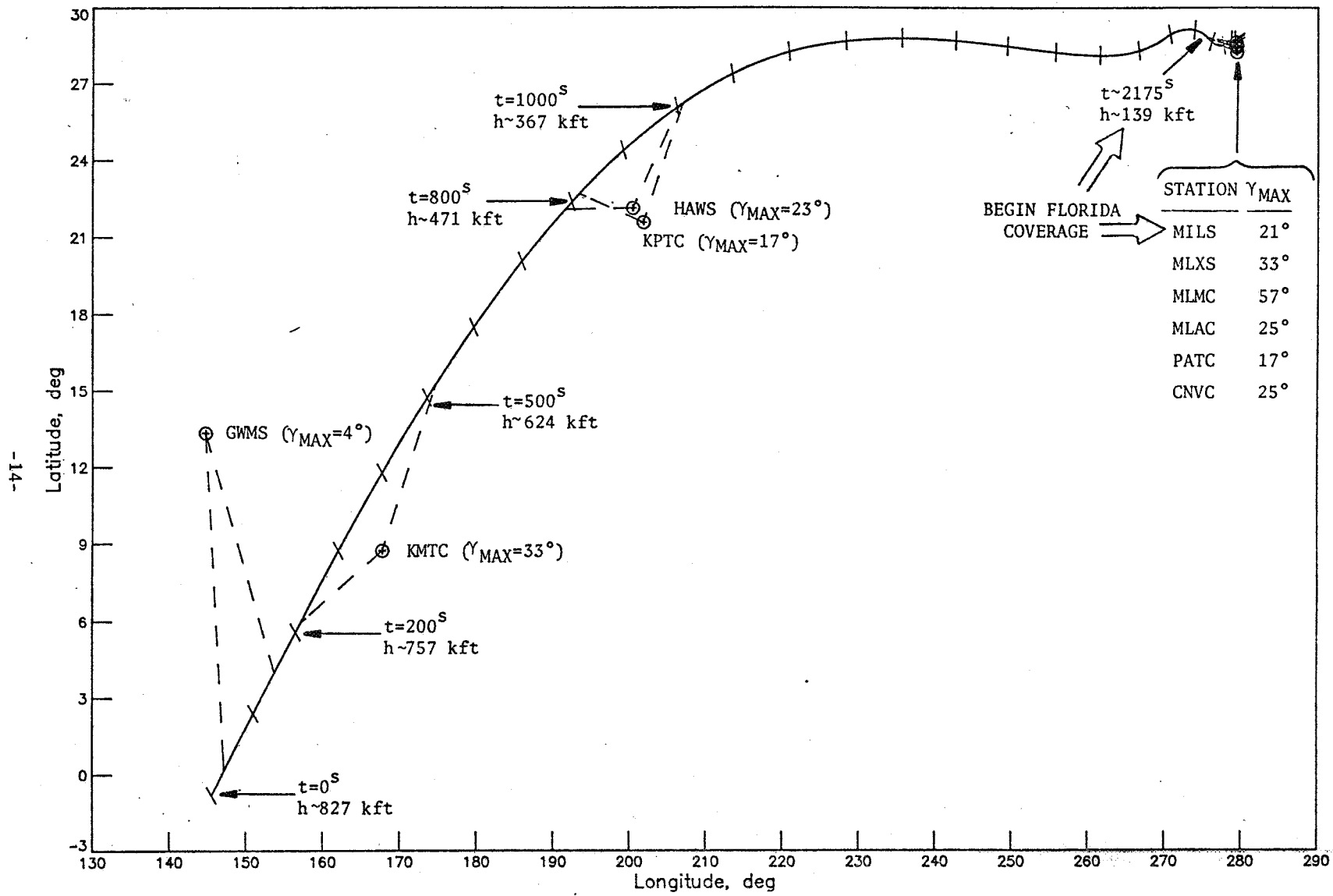


Figure I-3. STS-11 tracking coverage utilized in reconstruction process.

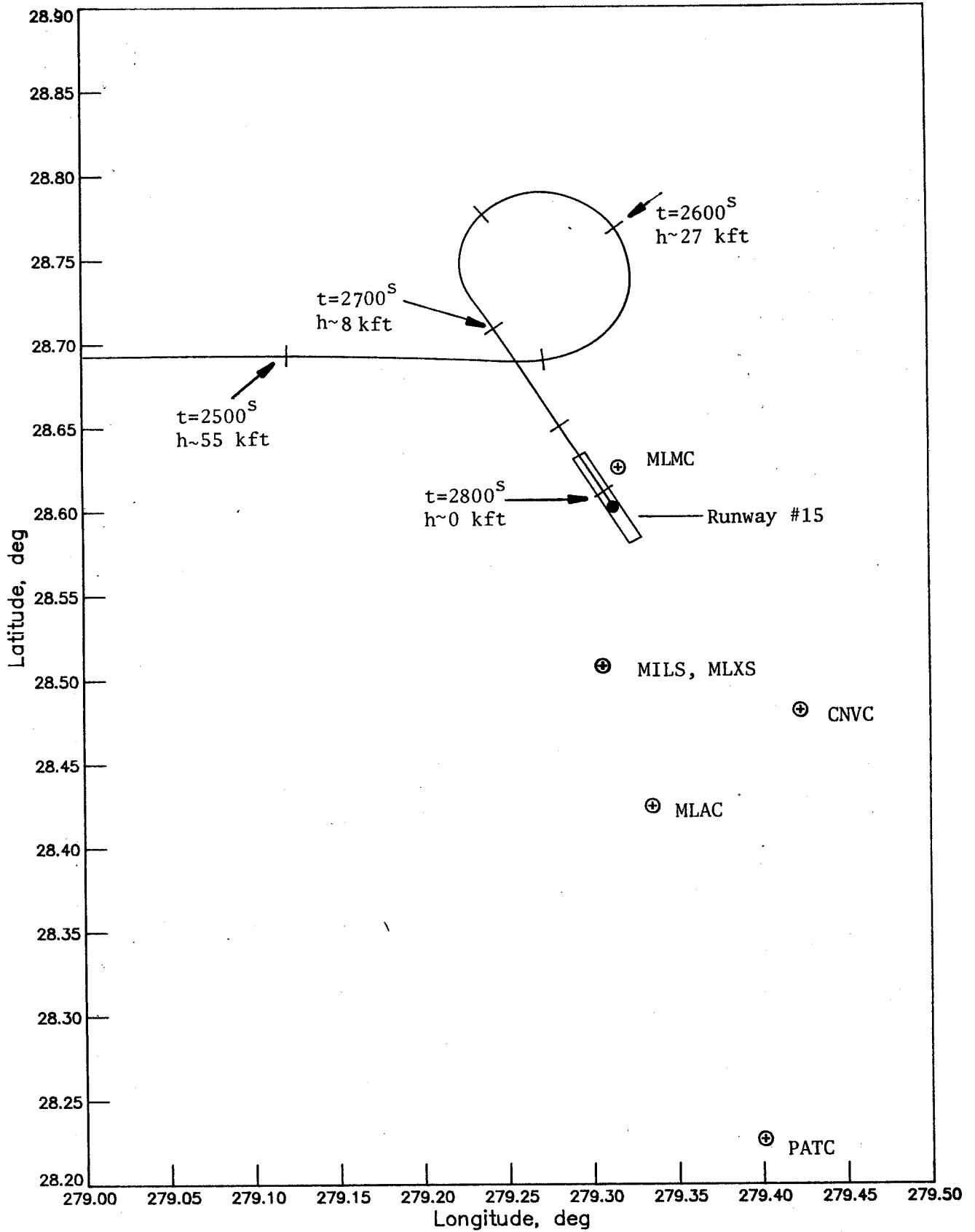
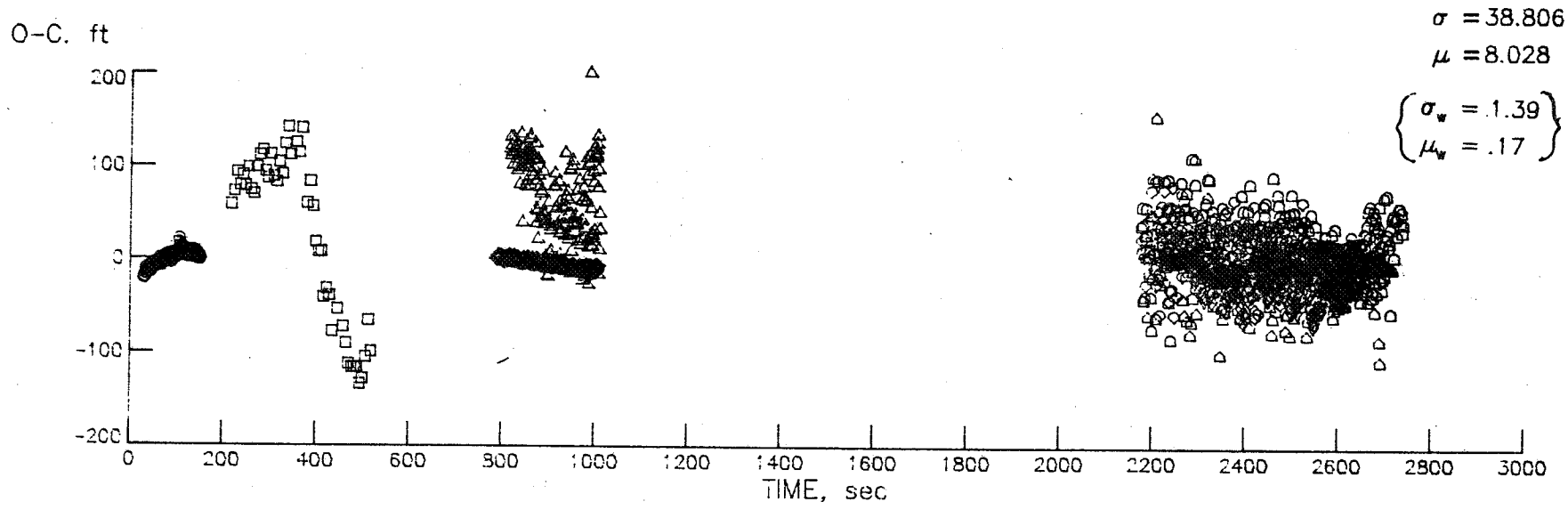
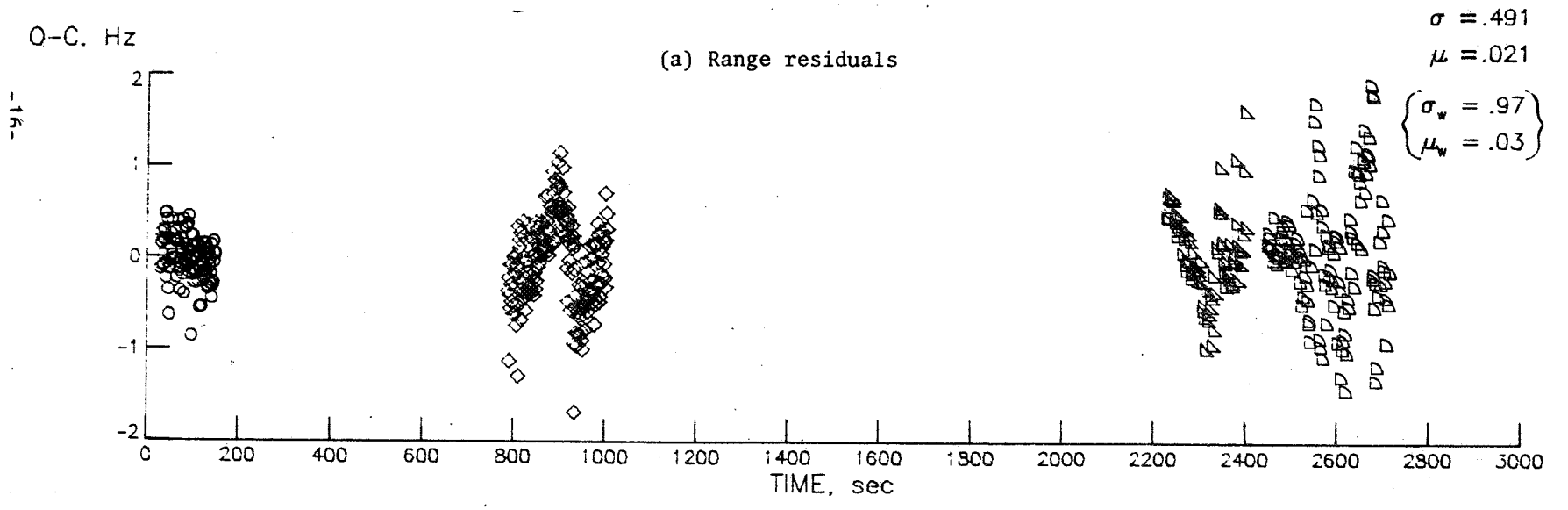


Figure I-4. STS-11 final approach and landing.



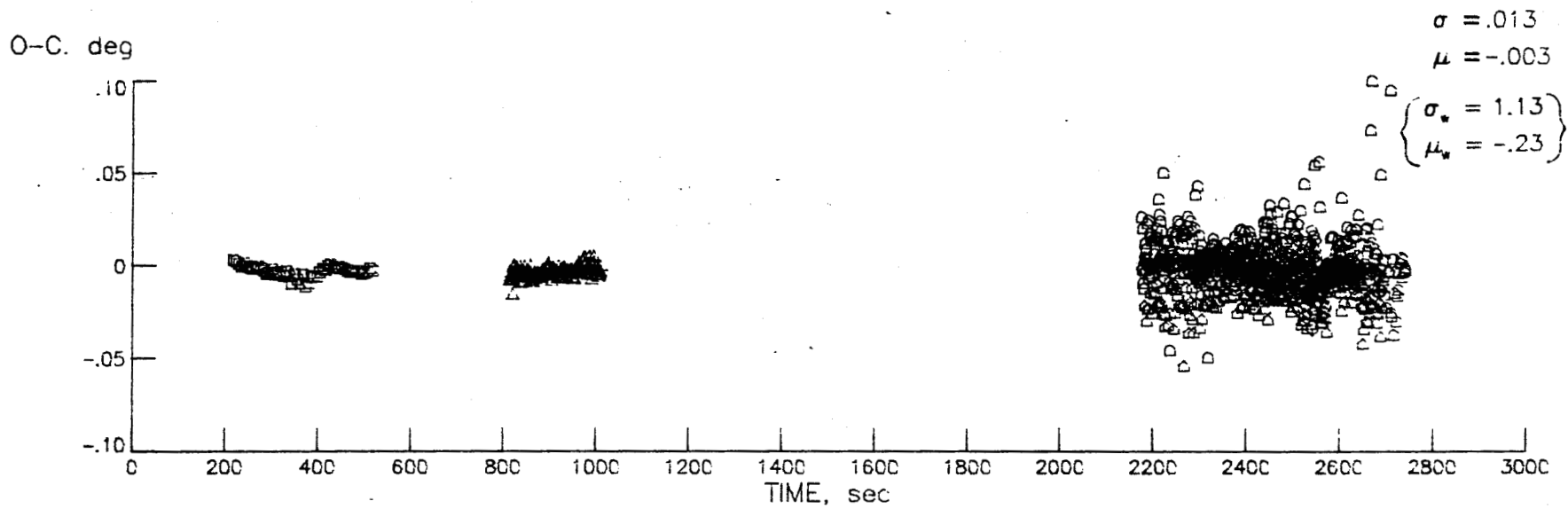
(a) Range residuals



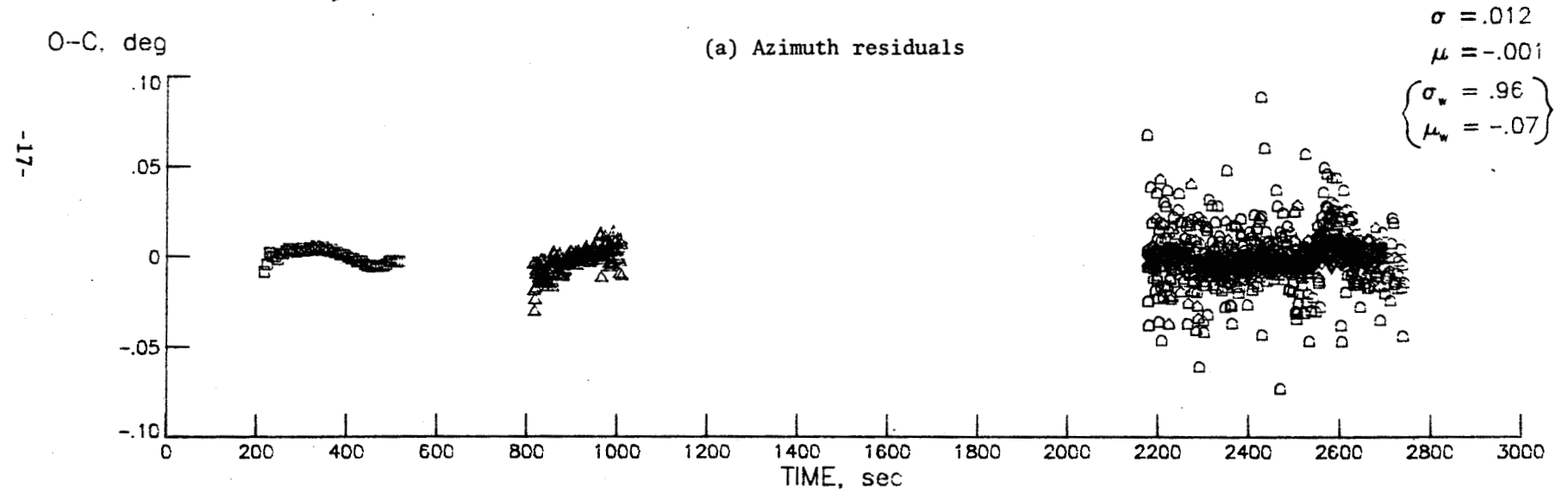
(b) Doppler residuals

Figure I-5. STS-11 composite range and Doppler residuals.

-41-

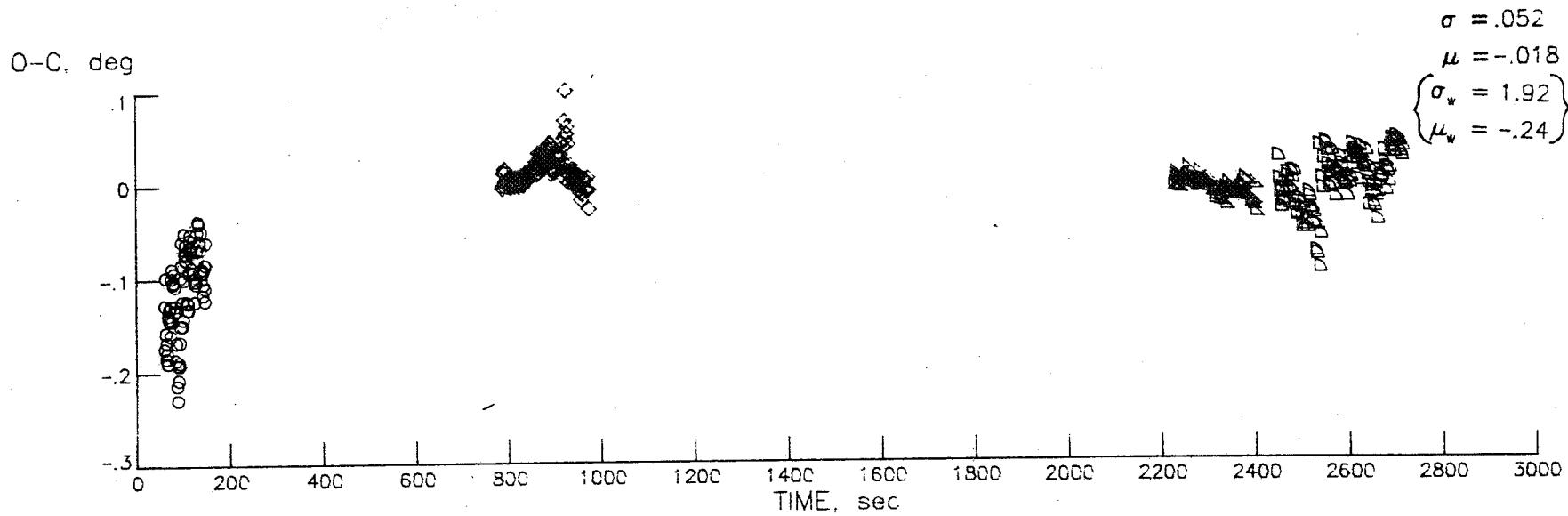


(a) Azimuth residuals

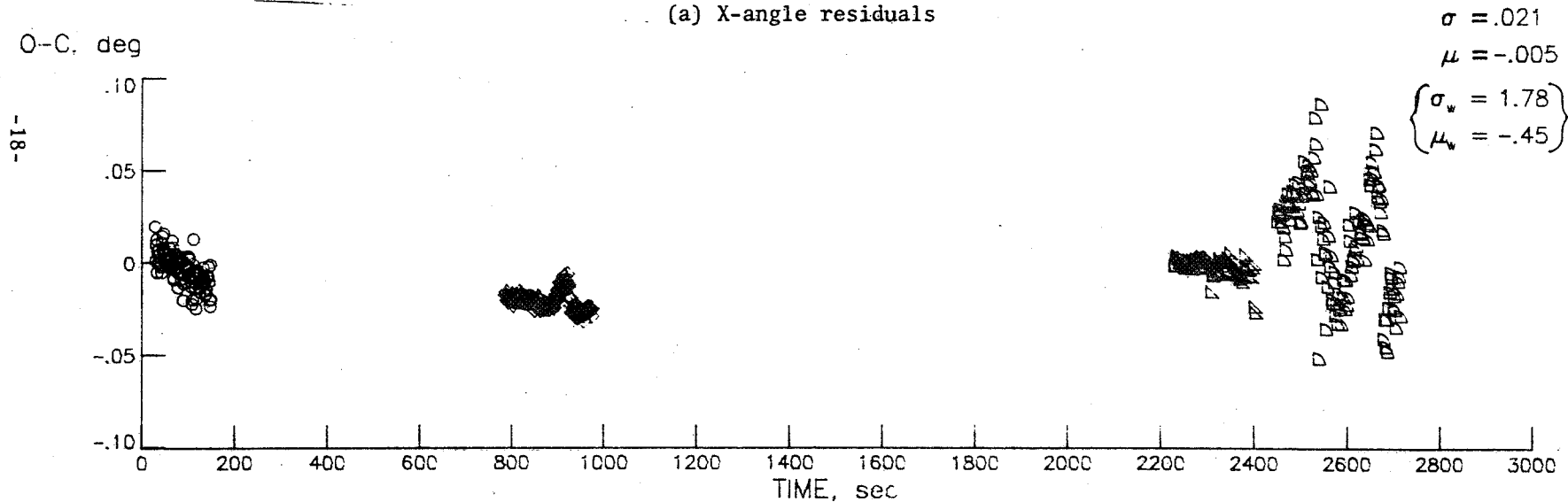


(b) Elevation residuals

Figure I-6. STS-11 composite azimuth and elevation residuals.



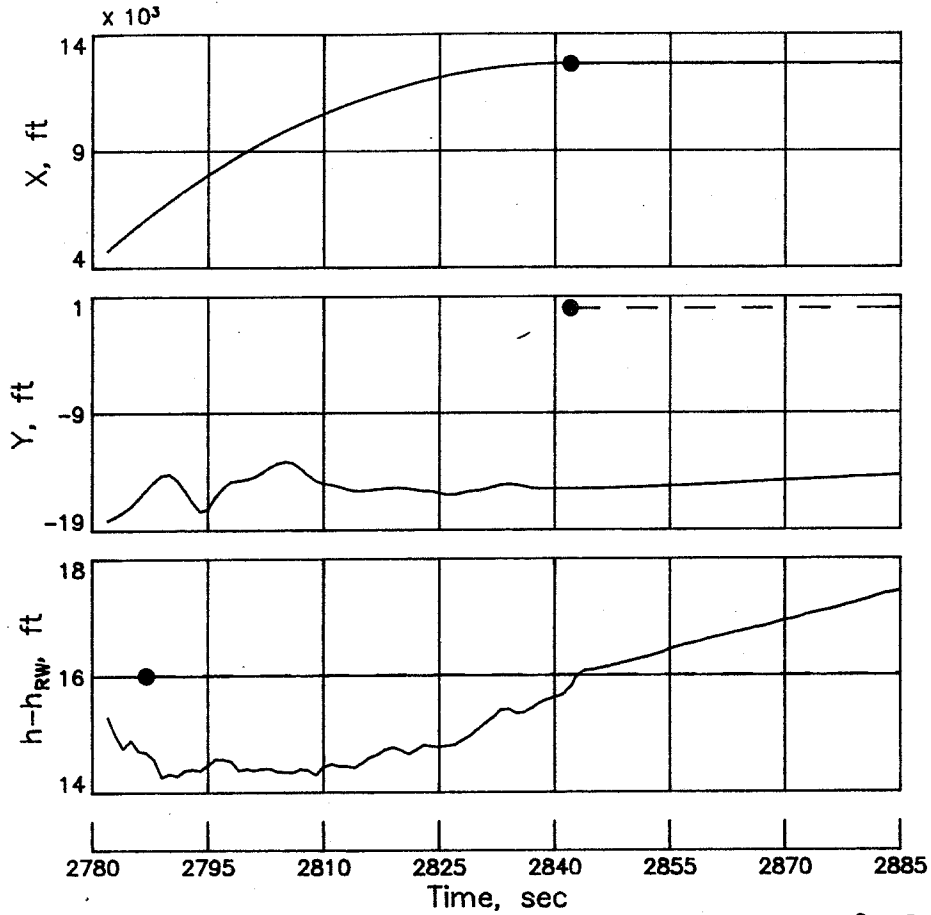
(a) X-angle residuals



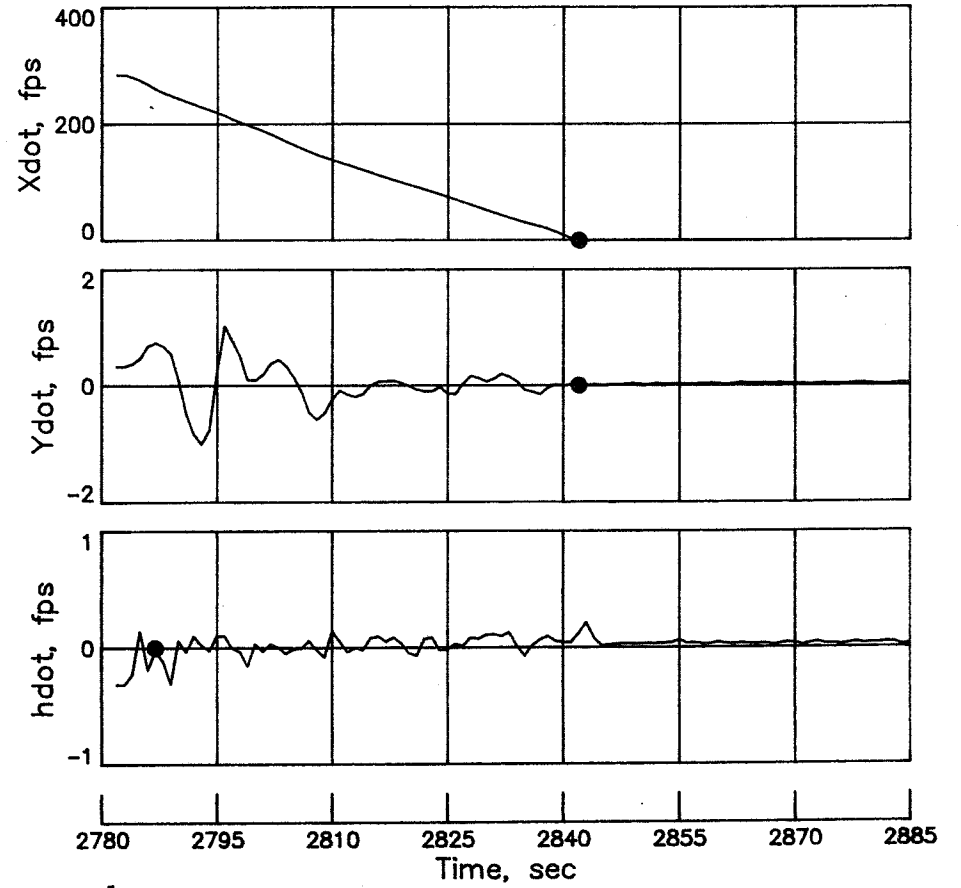
(b) Y-angle residuals

Figure I-7. STS-11 composite X-and Y-angle residuals.

ROLLOUT POS. IN RUNWAY COORDS



ROLLOUT VEL. IN RUNWAY COORDS



● survey values

Figure I-8. Rollout position and velocity plots for STS-11.

## II. Extended BET

Given the inertial BET previously discussed, it remains to evaluate the various atmospheric sources prior to merging these data to form the 66 word Extended BET (see AMA Report 81-11 for file contents). For STS-11, the atmospheric sources were:

- ST11MET - the LaRC LAIRS file developed by J.M. Price, AB/SSD
- NOAA11 - derived from the JSC/TRW BET which interpolated for these data from the defined NWS "totem poles",
- and AF78 - the Air Force Reference Atmosphere published by Cole and Kantor (AFGL-TR-78-0051) which includes both latitudinal and seasonal effects

Comparisons using these various atmospheres are presented herein. Figure II-1 shows density comparisons between altitudes of 150 kft and 300 kft. Each is normalized to the 1976 Standard Atmosphere now available in the LaRC program library. Shown are the three sources as well as the  $C_N$  derived density based on the BET, the measured normal acceleration, and the predicted normal force coefficient. The LAIRS data in this interval provide for the best comparisons in the sense that (not unexpectedly) the implied normal force prediction error is more reasonable. The LAIRS  $\rho$  does indicate under predicted aerodynamics above  $h \sim 245$  kft, as does the NOAA data (actually above  $h \sim 235$ ) which may not be real. The AF78 model tracks the  $C_N$  derived density in an almost parallel sense yet is apparently too dense (by  $\sim 10$  percent) throughout much of the interval shown. This judgment is based on previous Shuttle flight results, i.e., the statistical mean error in  $C_N$  has been shown to be considerably smaller ( $\sim 5$  percent over much of the hypersonic interval).

Temperature comparisons over the same altitude interval are shown for information as Figure II-2. Again, each is normalized to the 1976 Standard. No Shuttle derived temperature data are shown thereon.

Figures II-3 and II-4 show density and temperature comparisons for the lowermost 150 kft. Here, the LAIRS and NOAA data are seen to be exact below  $h \sim 65$  kft. This merging altitude was necessitated due to a LAIRS limitation to go below  $h \sim 5$  km. The 65 kft altitude was selected to permit smooth transition between the two atmospheric sources.



Below this altitude the data were in agreement to well within 5 percent where LAIRS data were available.

Subsonic wind evaluations had previously been done on the NOAA data by comparing implied winds derivable from the Rockwell side-probe air data measurements. These winds were found to be adequate and, since the NOAA data were adopted below 65 kft, it was not necessary to perform similar analysis on the LAIRS file. Wind comparisons generated are presented as Figures II-5 and II-6. Wind magnitude and direction comparisons are presented as Figure II-5. Shown are batch and deterministic derived winds from the side-probe measurements as well as the NOAA results. Consistency between the two estimates and the NOAA data, particularly for the batch winds, can be seen thereon. Equivalently, these differences are shown as Figure II-6. Shown are differences between the side-probe air data measurements ( $\alpha$ ,  $\beta$ ,  $V_T$ ) and BET computed values based on the NOAA winds. The level of agreement is certainly as good as one might expect.

In summary, the final atmosphere developed for STS-11 is FLAIR11/UN=274885C which is a merger of the LAIRS (ST11MET/UN=712662N) and the NOAA data. Figures II-7 through II-10 show final plots of atmospheric temperature, pressure, density, and winds for this flight.<sup>†</sup> It is noted that no winds were available on the LAIRS file above h~240 kft. This should not represent a problem in view of the spacecraft velocity at these altitudes.

The final Extended BET based on this atmosphere and the inertial trajectory is ST11BET/UN=274885C.

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<sup>†</sup>plotted only over the lowermost 400 kft

h , kft

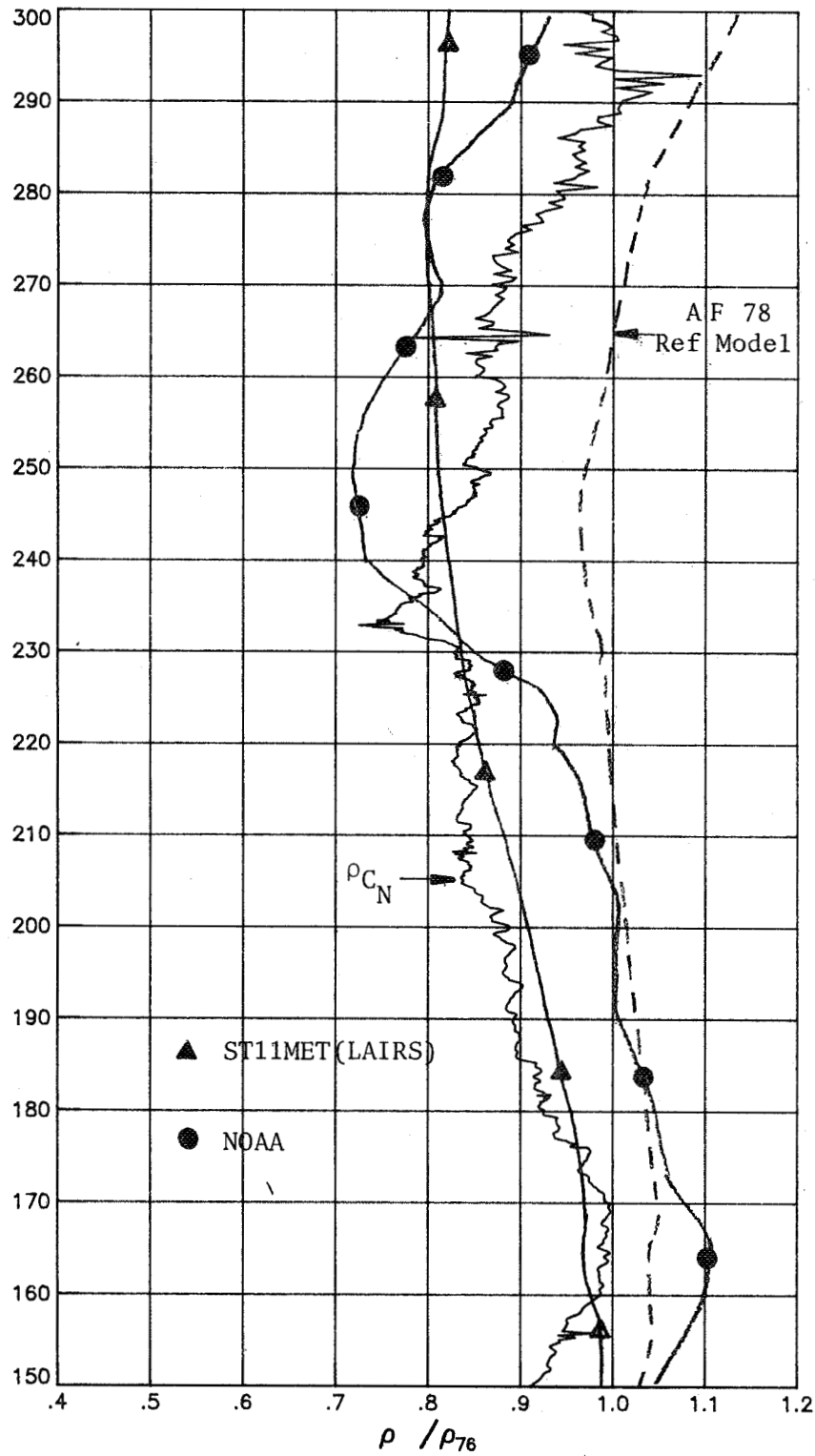


Figure II-1. Upper altitude density comparisons for STS-11 (41-B).

h , kft

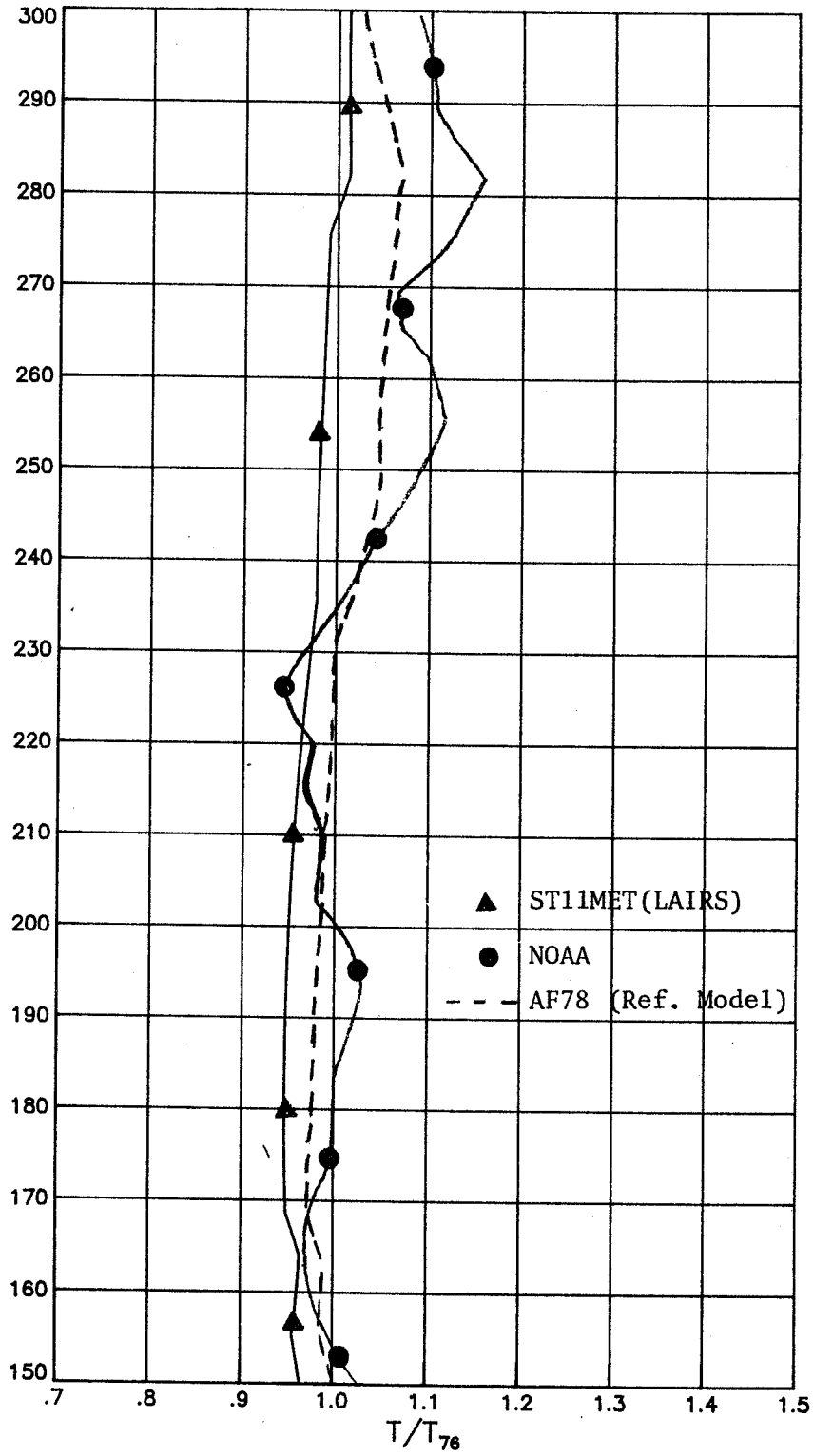
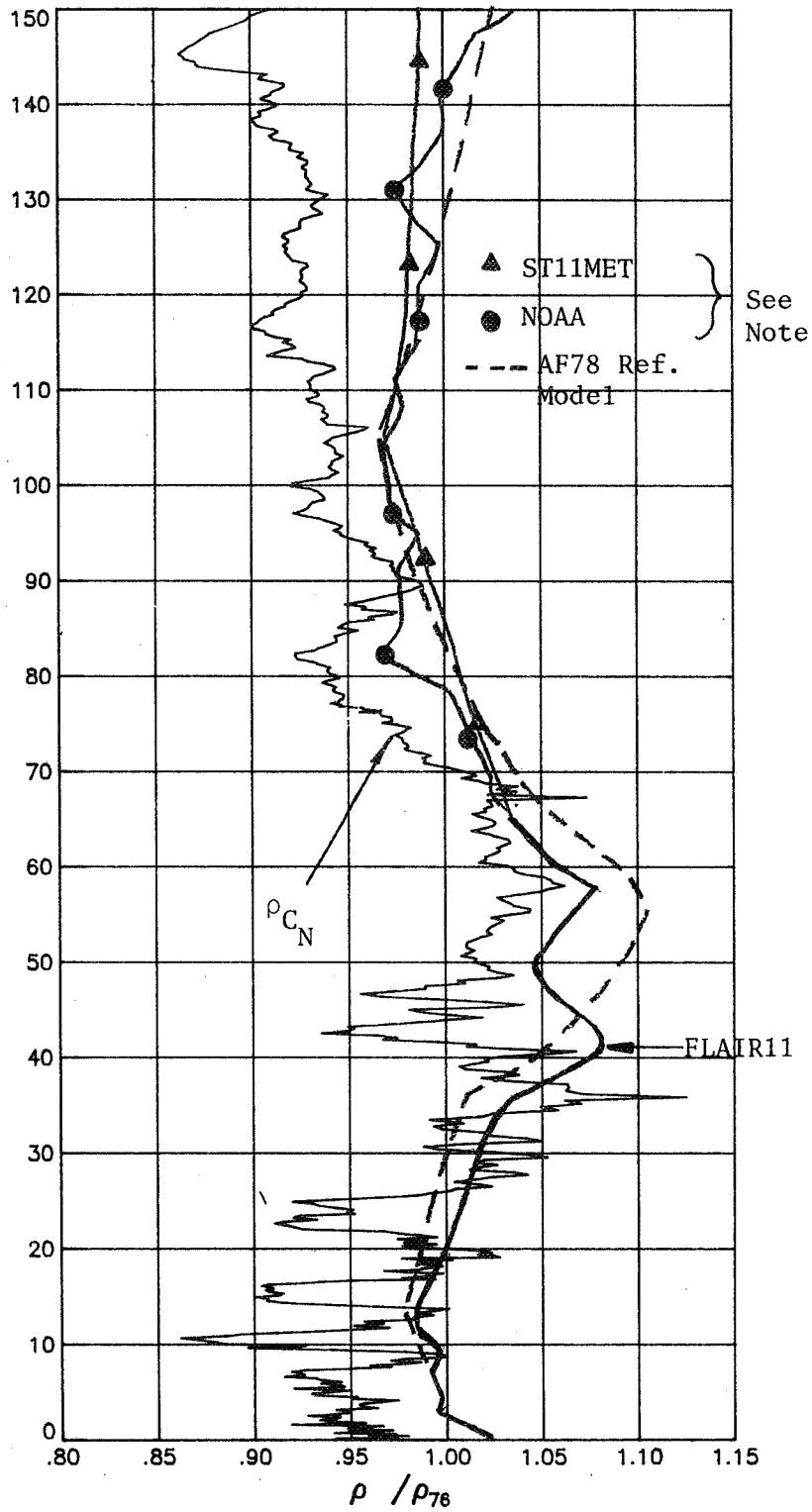


Figure II-2. Upper altitude temperature comparisons for STS-11 (41-B).

h , kft



NOTE: Final LAIRS file (FLAIR11) merged ST11MET with NOAA data below 65 kft

Figure II-3. Lower altitude density comparisons for STS-11 (41-B).

h , kft

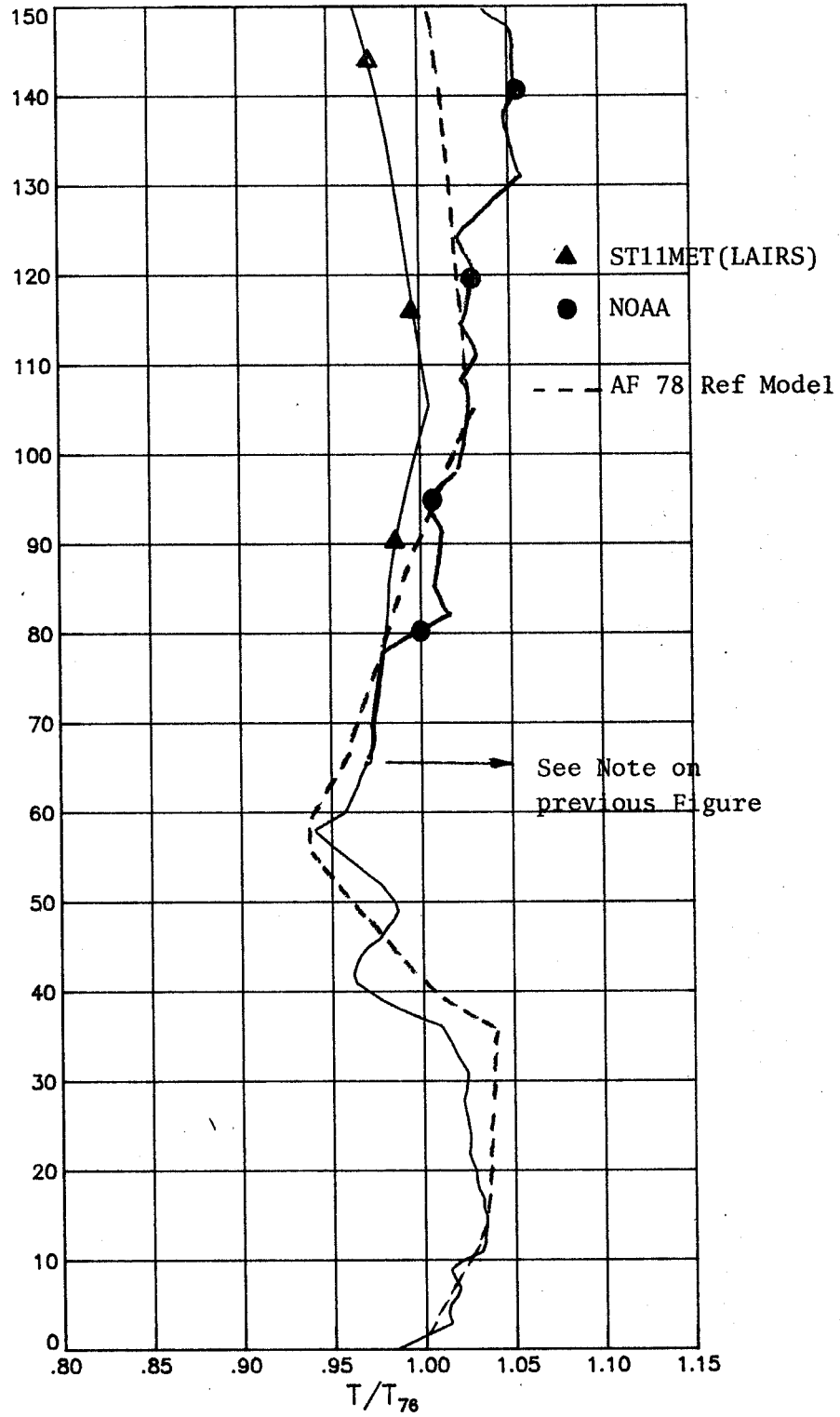
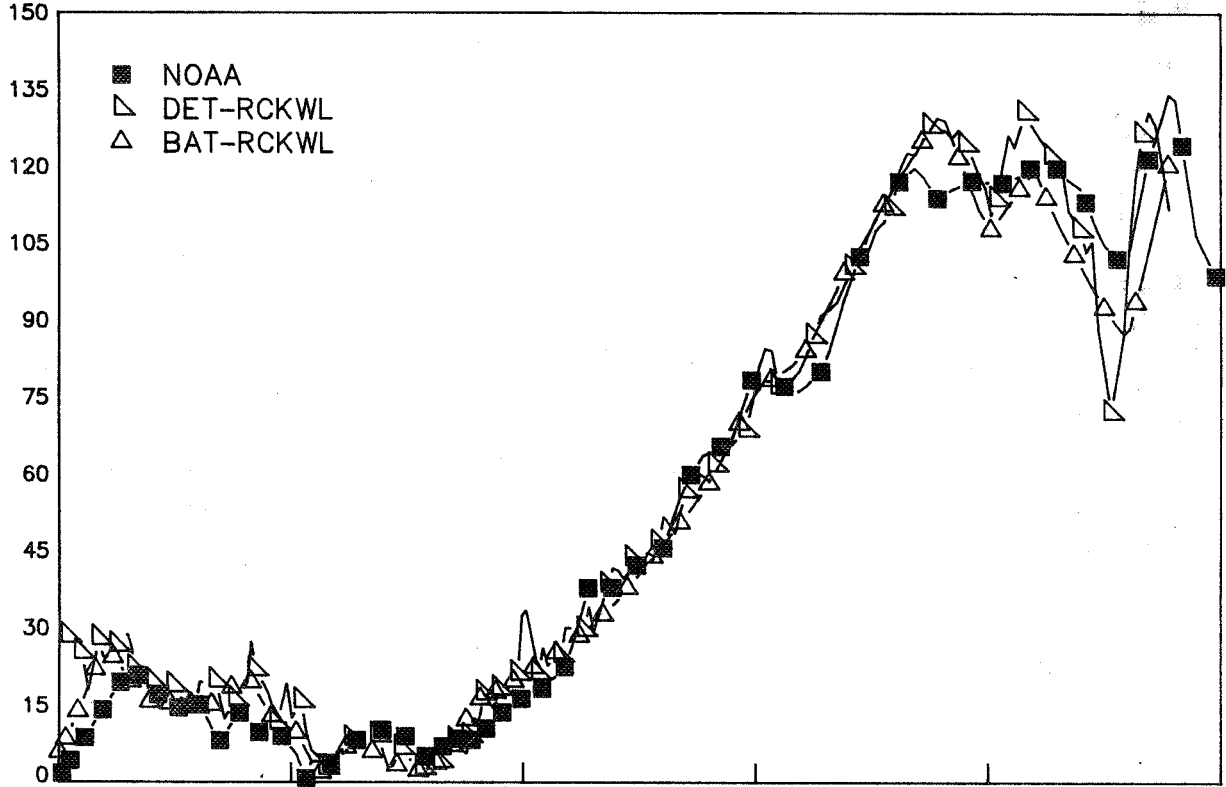


Figure II-4. Lower altitude temperature comparisons for STS-11 (41-B).

Wind Magnitude, fps



Wind Direction, deg

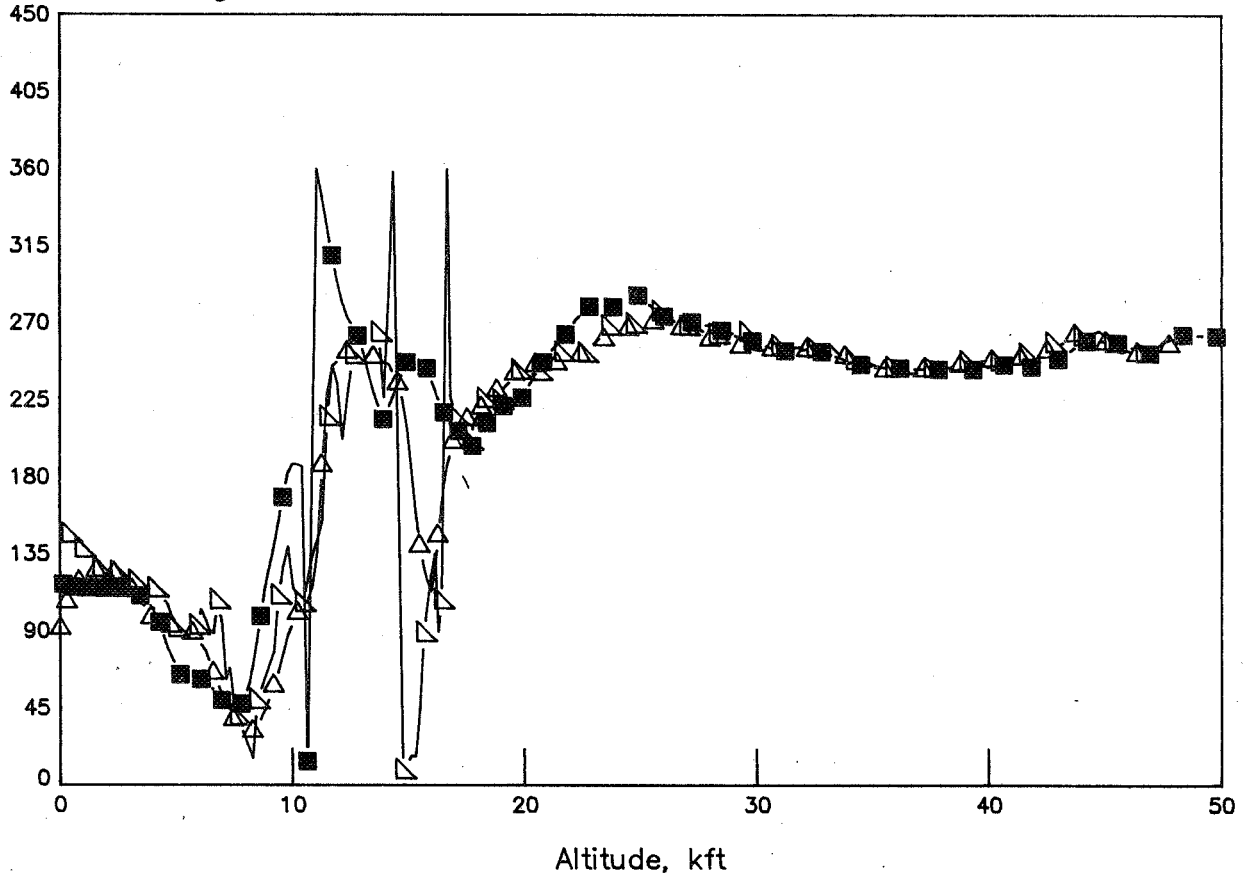
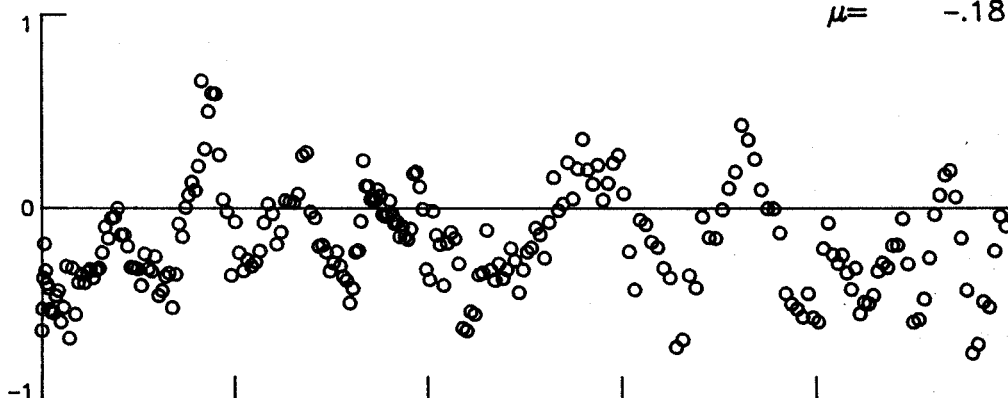
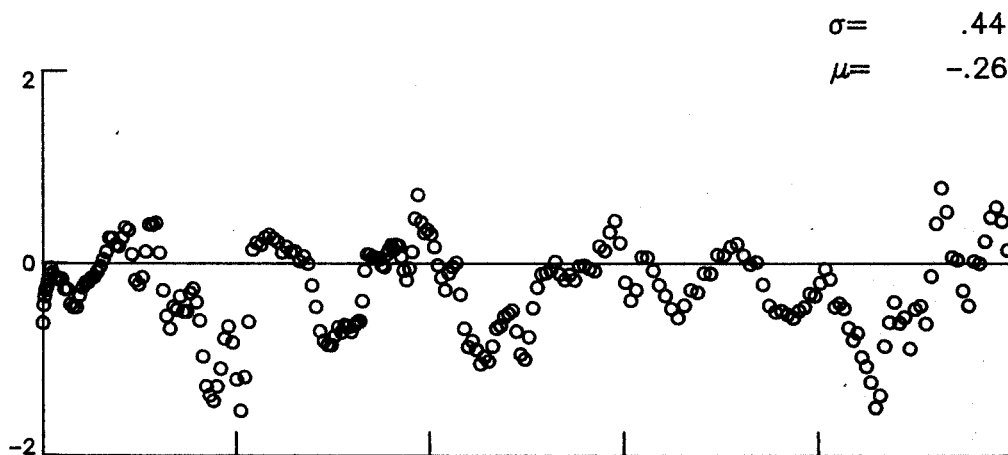


Fig. II-5. - STS-11 Measured and Derived Winds

$\Delta\alpha$ , deg



$\Delta\beta$ , deg



$\Delta v_T$ , fps

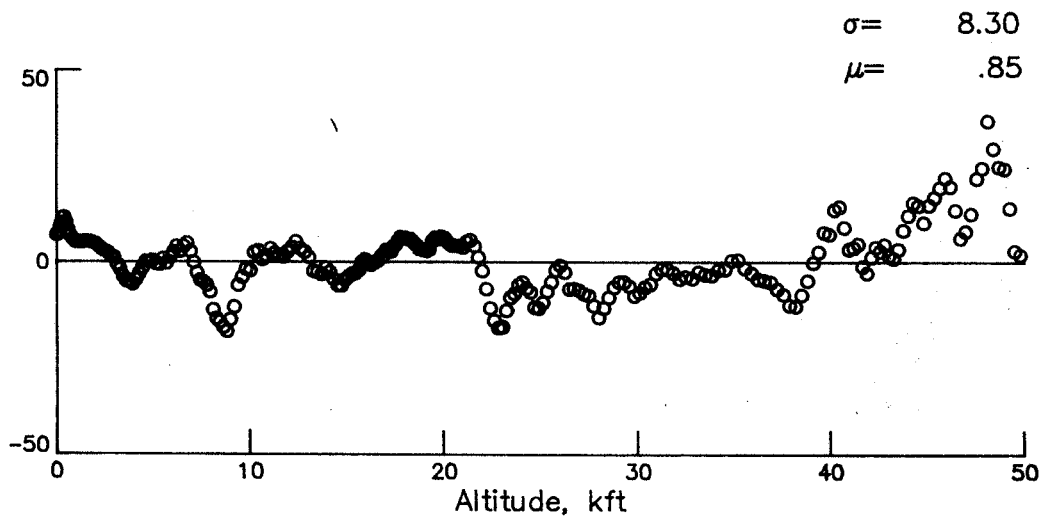


Fig. II-6. STS-11 ADP Differences, ST11ADS-ST11BET

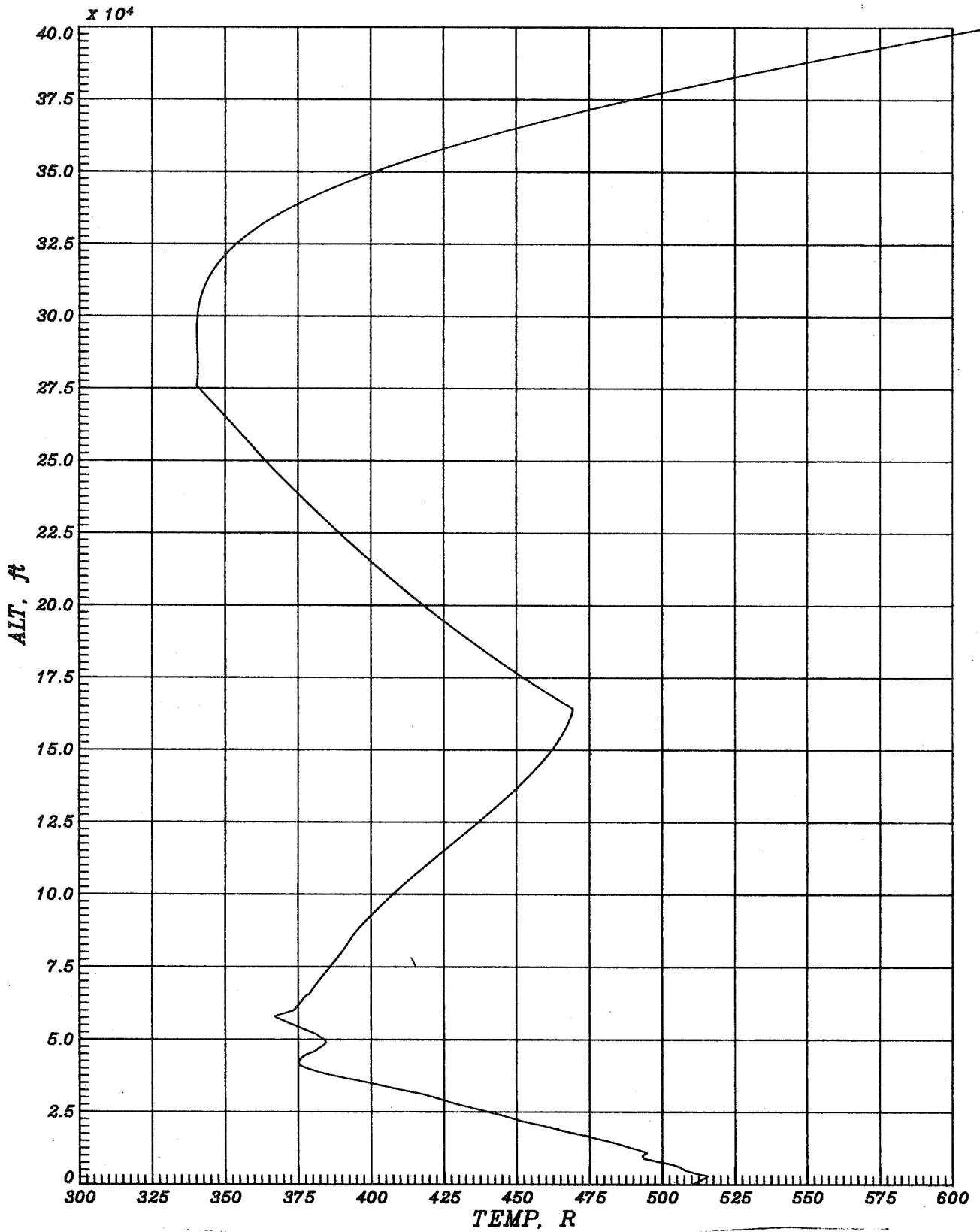


Figure II-7. Final STS-11 (41-B) temperature profile.



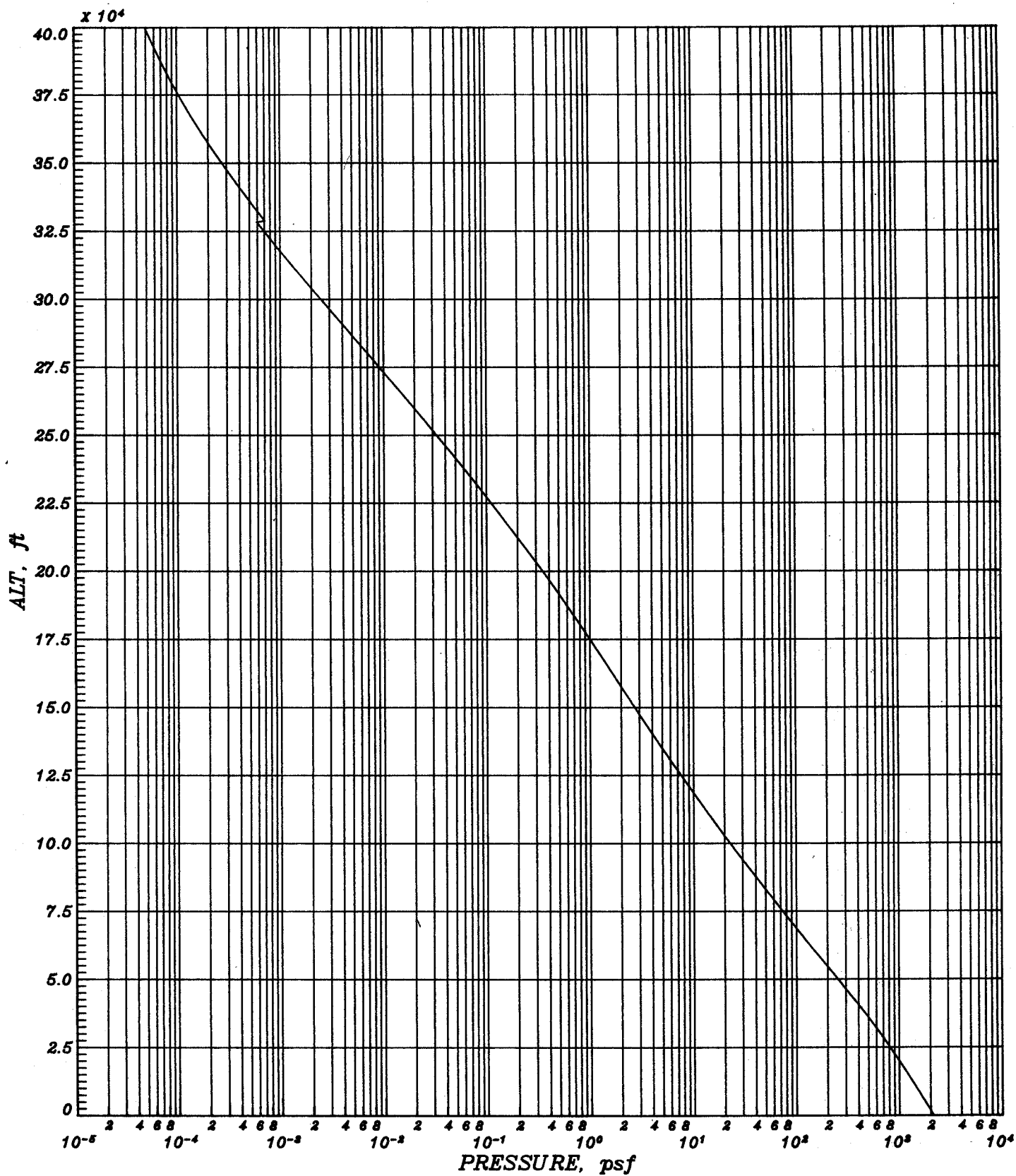


Figure II-8. Final STS-11 (41-B) atmospheric pressure profile .

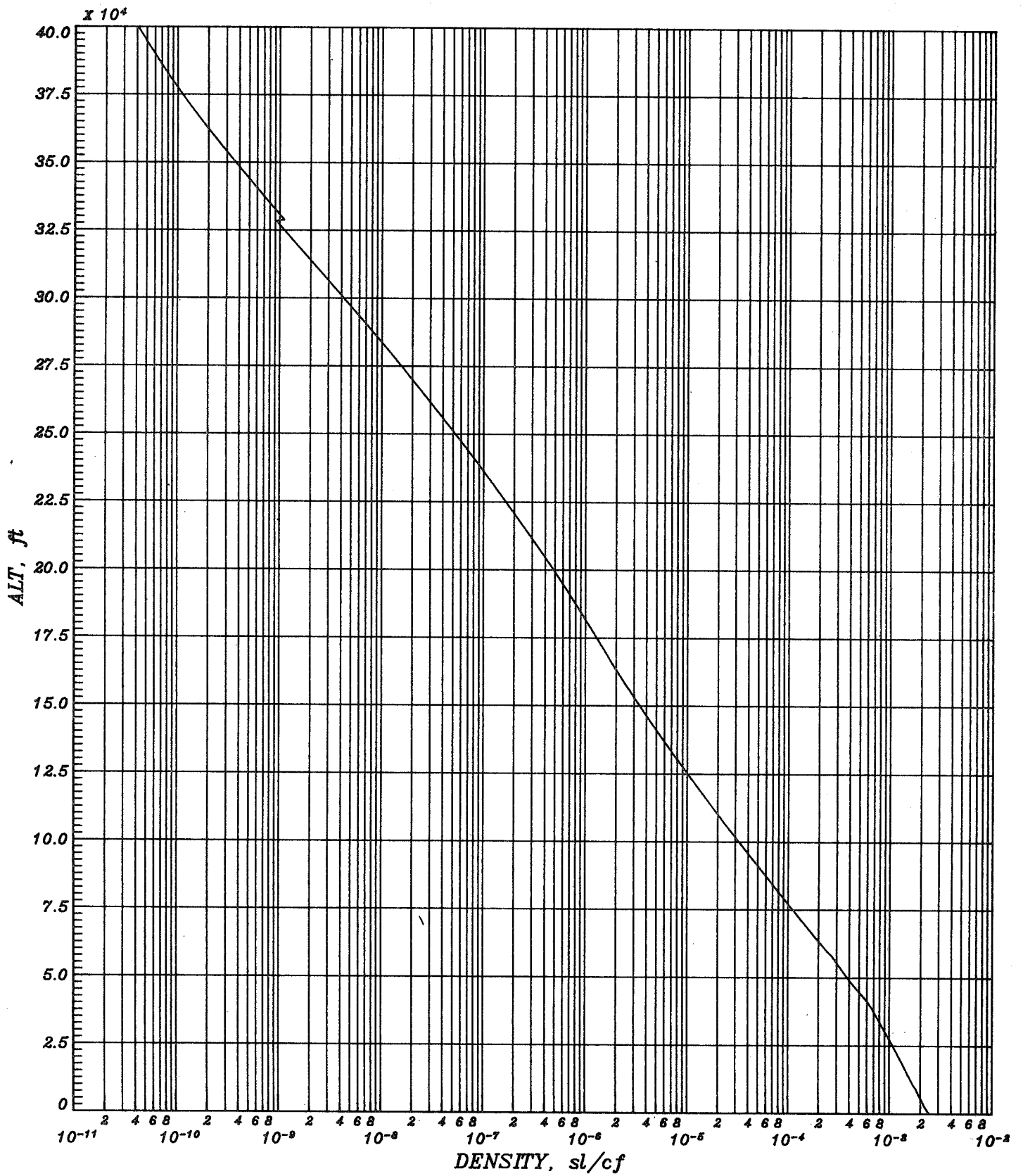


Figure II-9. Final STS-11 (41-B) atmospheric density profile.

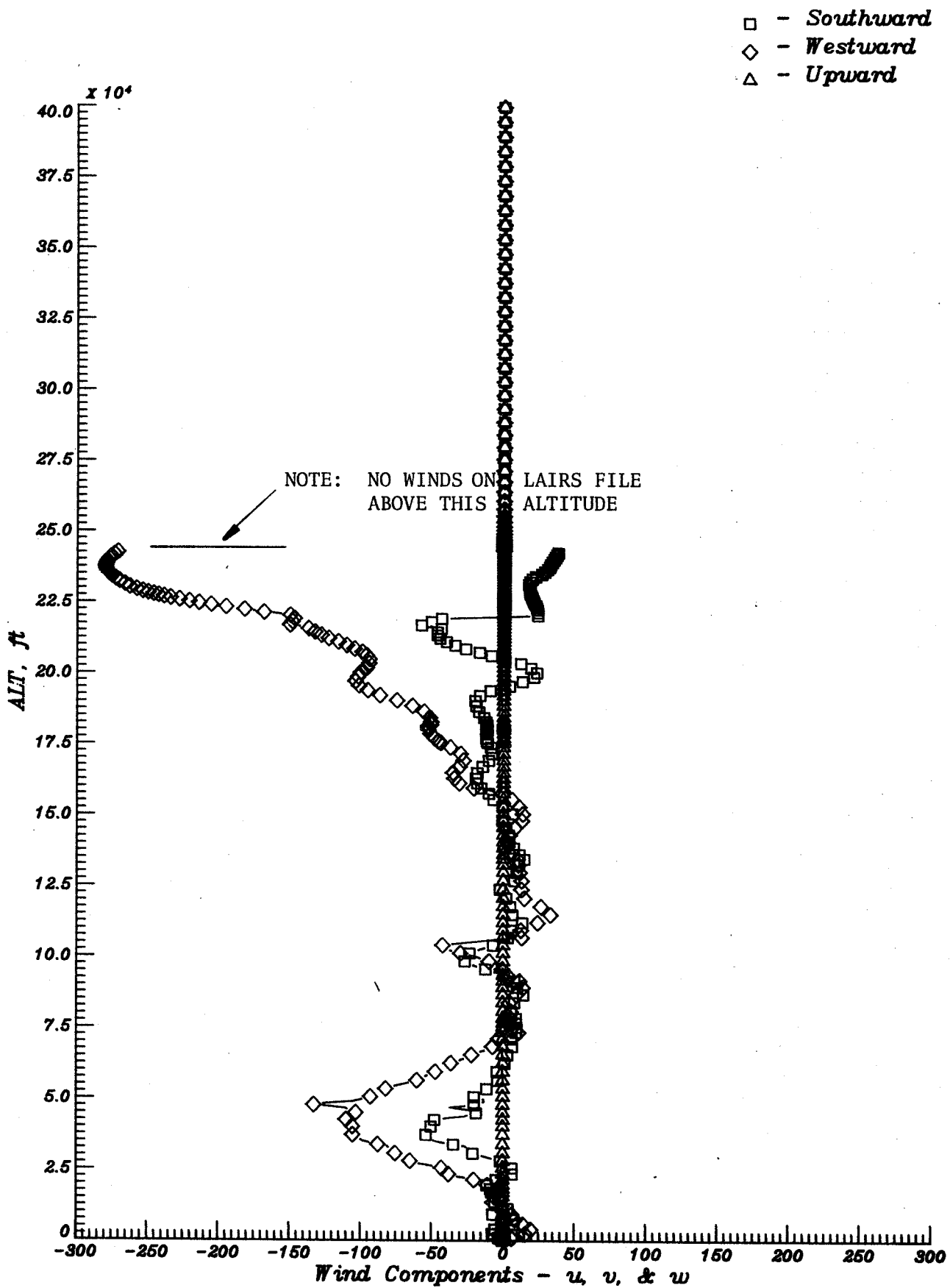


Figure II-10. Atmospheric winds for STS-11 (41-B) versus altitude.

### III. AEROBET Development and Results

Based on the previously discussed Extended BET (ST11BET which merged the inertial BET, BT11A12, and the final atmosphere, FLAIR11), the OI recorded data, and final mass properties, the STS-11 AEROBET file was generated. The OI data were reformatted from the input source tape from LaRC and output as NX0369 for generation of the AEROBET. This reformatted OI file, which defines spacecraft configuration, specifically, control surface deflections and RCS jet firings, was not available until ~400 seconds (h~672 kft) from epoch, thus defining the initial time (altitude) on the AEROBET. The AEROBET terminates at WOW, i.e., 2774 seconds from epoch. Mass properties utilized are as defined in Appendix A, Table A-3. The LaRC vintage '78 Orbiter data base was utilized for spacecraft aerodynamic predictions.

The AEROBET generated for STS-11 is on physical nine-track reel NLO429 with a back-up (duplicate) copy on reel NF0349. Contents of an AEROBET file are as described in AMA Report No. 82-9. Specific data on the STS-11 AEROBET are next presented graphically to aid researchers in their preliminary analyses.

Figure III-1 shows the altitude history from 400 seconds to landing. Figure III-2 shows spacecraft descent rate versus time and altitude. Dynamic pressure and Mach number are plotted versus both time and altitude as Figures III-3 and III-4, respectively. Figure III-5 shows the hypersonic viscous interaction parameter versus altitude for the interval wherein  $\bar{V}_\infty$  is actually utilized in the data base look-up. Air relative attitude angles ( $\alpha$ ,  $\beta$  and  $\sigma$ ) are shown in Figures III-6 (vs time), III-7 (vs Mach), and III-8 (vs altitude). Spacecraft dynamics (derived from IMU<sup>2</sup> measurements) are shown versus Mach number in III-9, and versus altitude (III-10) over the lowermost 400 kft.

Configuration plots are presented as Figures III-11 through III-16. Control surface deflections are presented versus time, Mach, and altitude in Figures III-11, III-12, and III-13, respectively. Figures III-14 through III-16 show RCS activity versus time, Mach, and altitude.

Aerodynamic performance comparisons are presented as the remaining plots in this Section. Direct L/D,  $C_L$ , and  $C_D$  comparisons versus Mach and altitude are presented as Figures III-17a through 22b as indicated.

Results are separated in Mach regions as follows:  $2 < M < 30$  and  $0 < M < 2$ . Correspondingly, plots vs. altitude are presented which conform (in altitude) to approximately the same two Mach intervals, namely:  $80 \text{ kft} < h < 280 \text{ kft}$  and  $0 \text{ kft} < h < 80 \text{ kft}$ . Shown on each of these direct comparison figures are flight extracted values (o), predicted quantities ( $\Delta$ ), and expected variations, the latter as solid lines as bounds on the predicted quantities.

These results are best summarized by inspection of the percentage difference equivalents  $((\text{flight-predicts})/\text{flight})$  shown as Figures III-23a and b (versus Mach) and Figures III-24a and b (versus altitude). Shown on the plots versus Mach number are the (statistical) results from the first five(5) Columbia flights, shown as the shaded region. Of interest are the lift and drag results (see Figure 23a) above Mach 22 and in the vicinity of Mach 7. A major jump is observed at  $M \sim 23$  which again suggests a sharp density change (or flow related phenomenon) quite different than sensed or expected in the AF78 model. This can also be observed in the  $\rho_{C_N}$  plot of Figure II-1 at  $h \sim 233 \text{ kft}$ . The  $\sim 15$  percent overprediction at Mach 7, though not necessarily independent of atmosphere, is repeatable to within 1 percent for the three available atmospheric sources at hand. This overprediction can be seen in the  $\rho_{C_N}$  curvature of Figure II-3 which suggests a less dense region over the altitude interval,  $142 \text{ kft} < h < 150 \text{ kft}$ .

The final two figures in this AEROBET Section show pitching moment comparisons. Figure III-25 shows direct comparisons in the flight data (at the flight c.g.) against predicts with variations superimposed. Percentage differences, transferred to the 65 percent reference c.g. commensurate with the data base, are presented as Figure III-26. Again, Columbia statistics are superimposed.

h , kft

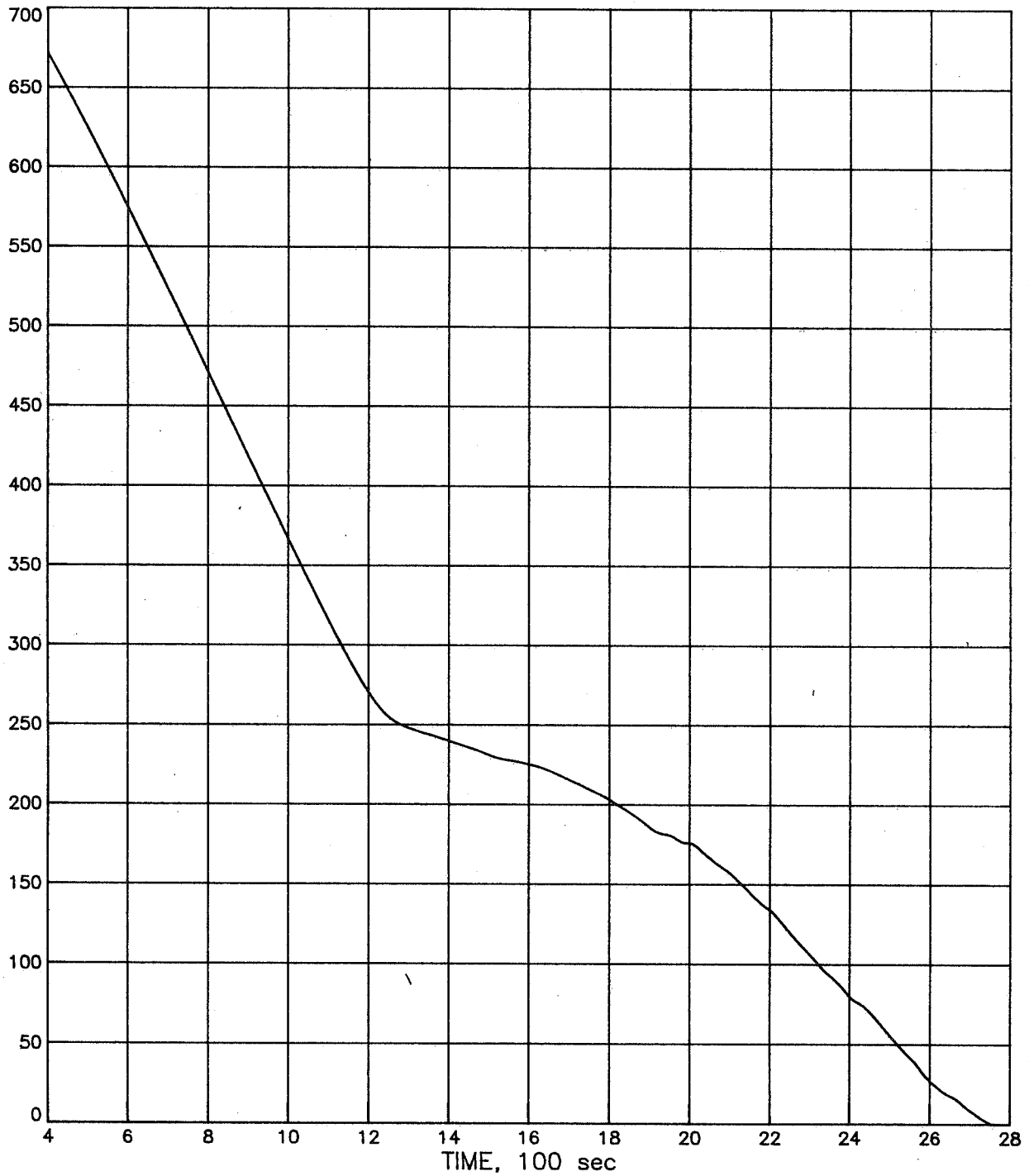
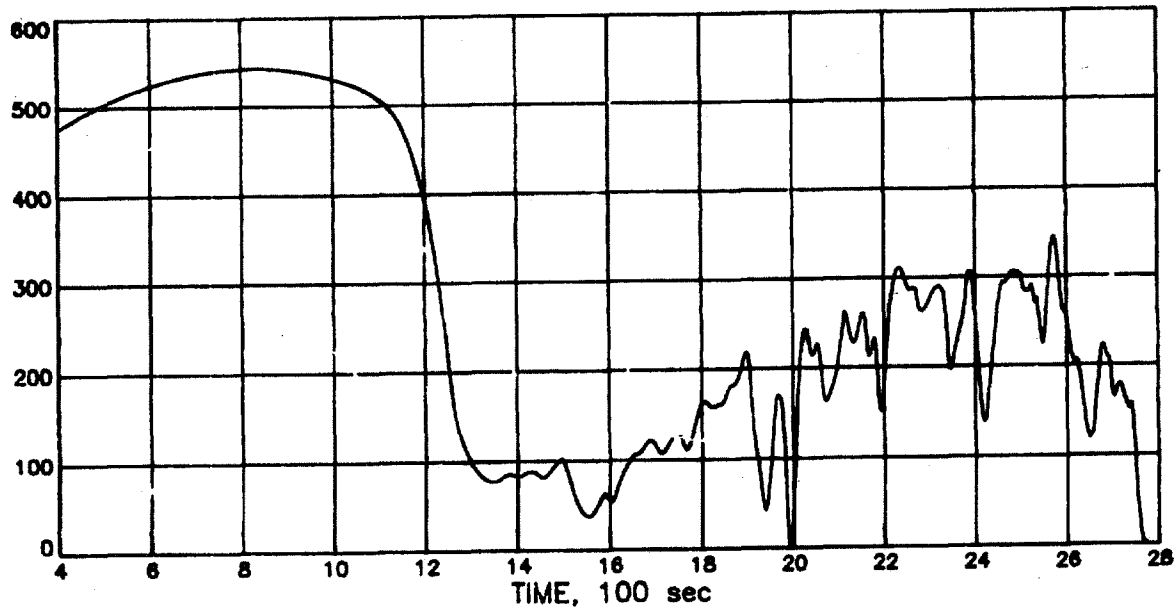


Figure III-1. STS-11 altitude time history

w, fps



w, fps

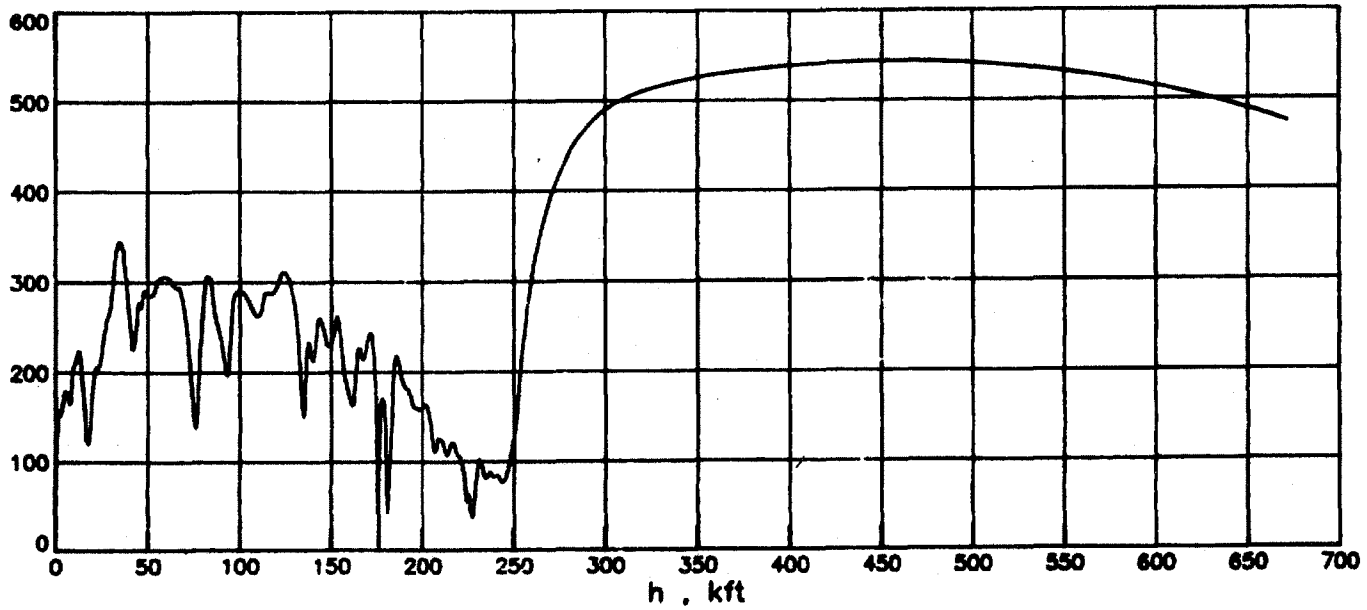
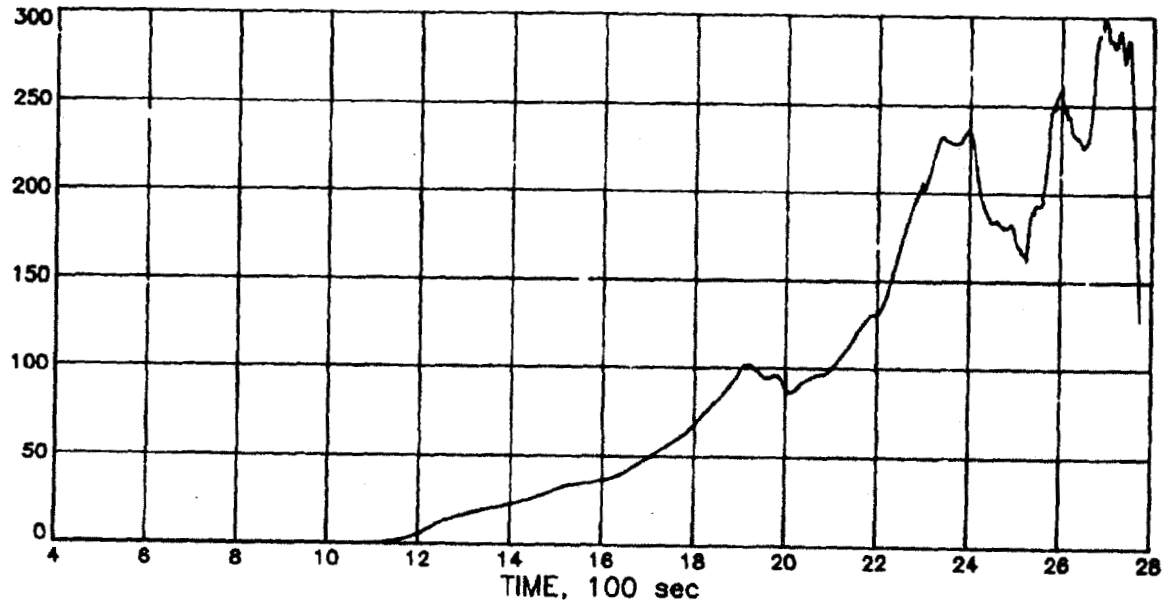


Figure III-2. STS-11 descent rate versus time and altitude ( $\dot{h} = -w$ )

ORIGINAL PAGE IS  
OF POOR QUALITY

q , psf



ORIGINAL PAGE IS  
OF POOR QUALITY

q , psf

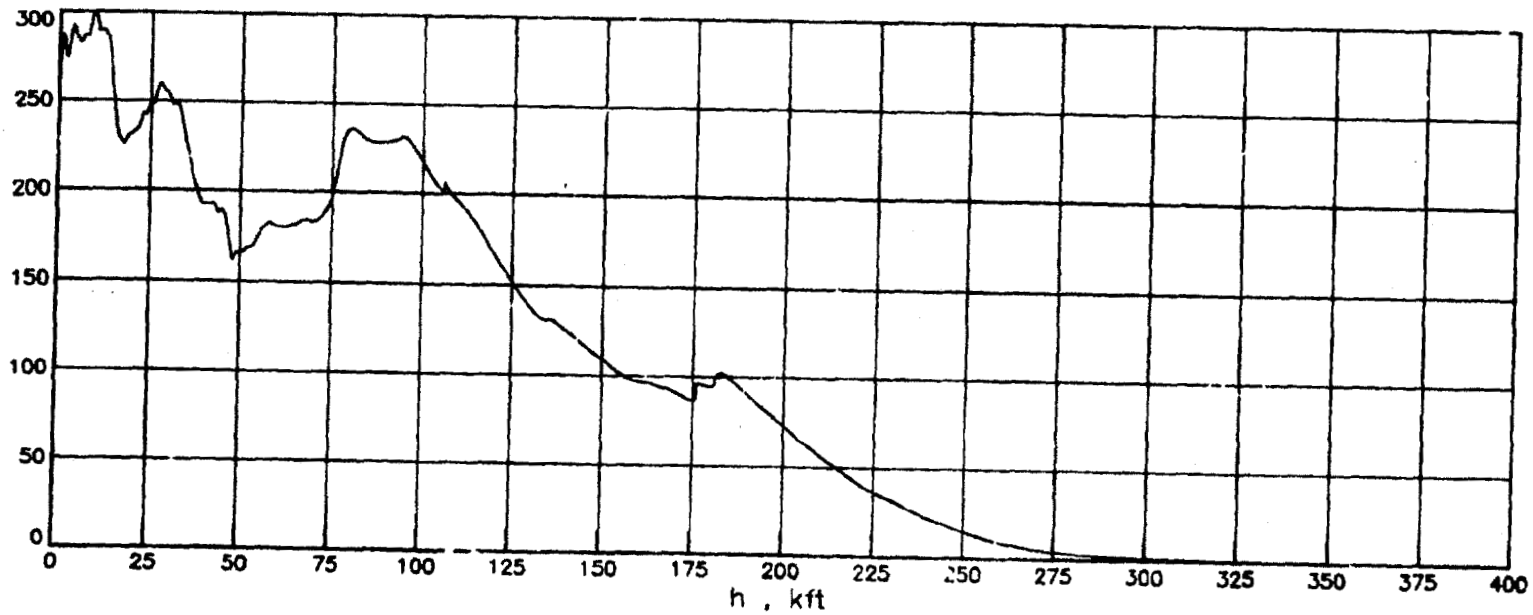
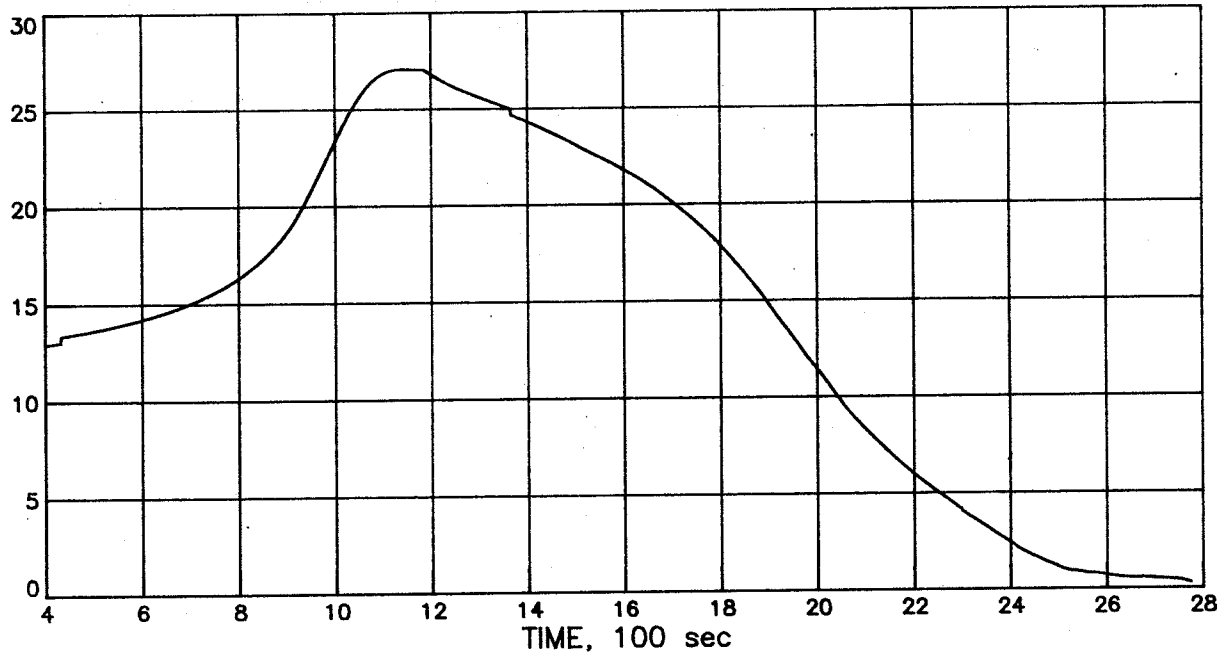


Figure III-3. STS-11 dynamic pressure vs. time and altitude



Mach



Mach

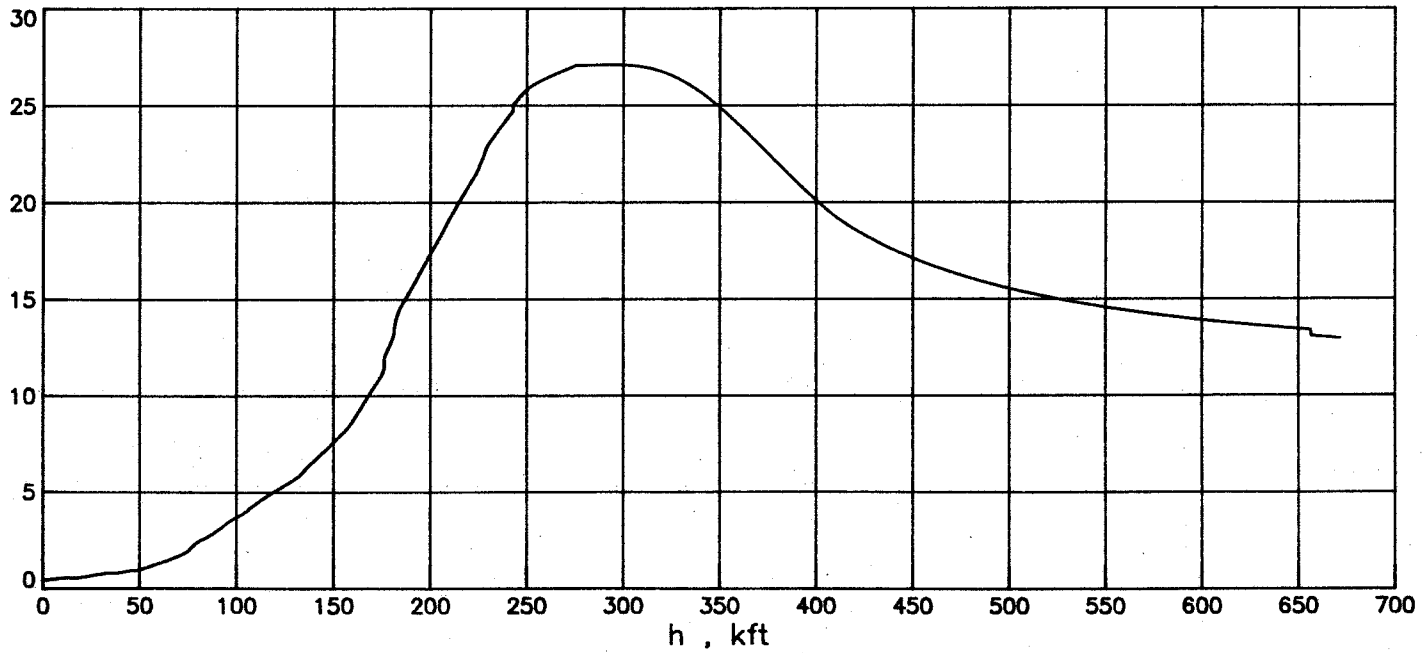


Figure III-4. STS-11 Mach number versus time and altitude

$V_{bar_{\infty}}$

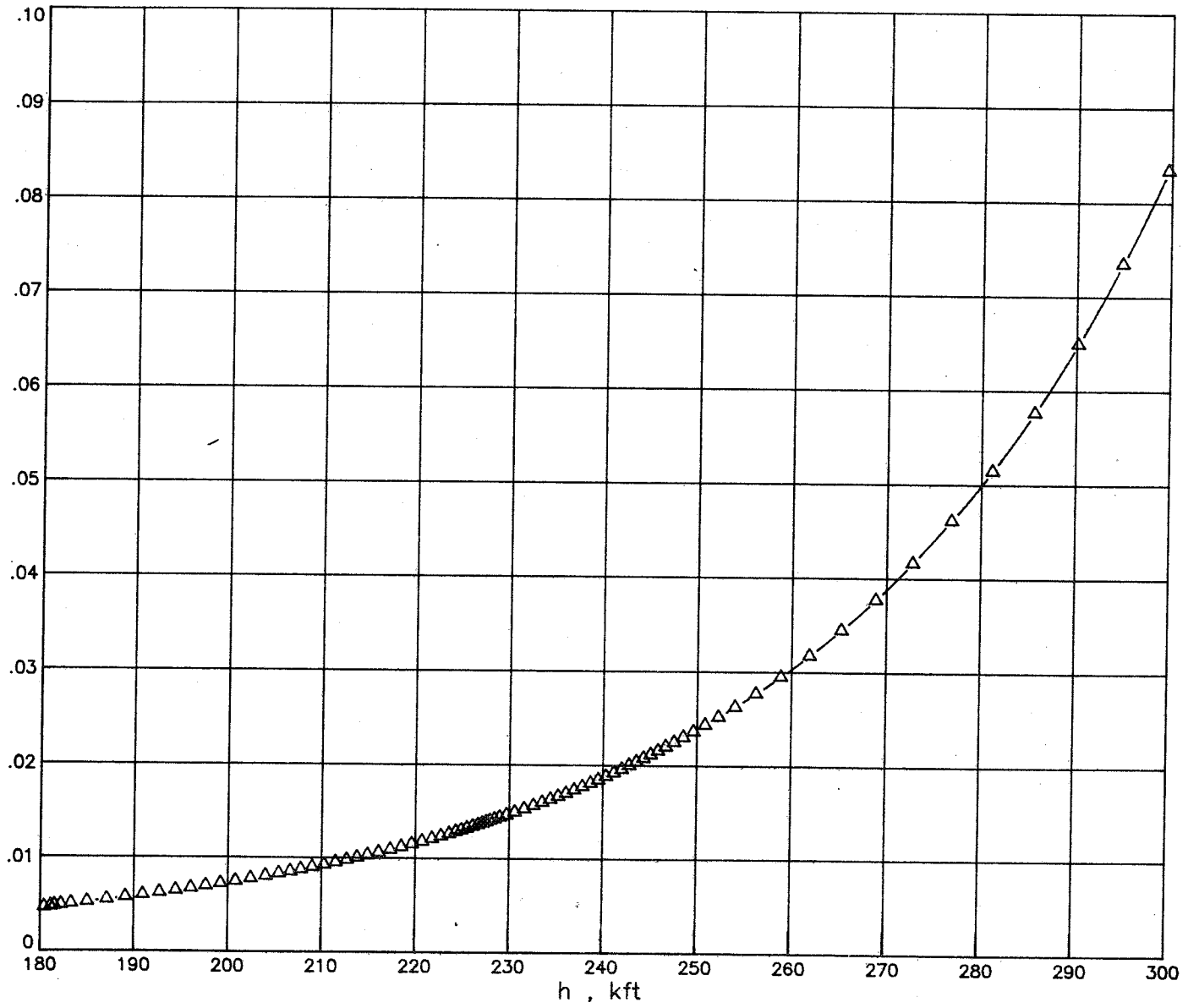
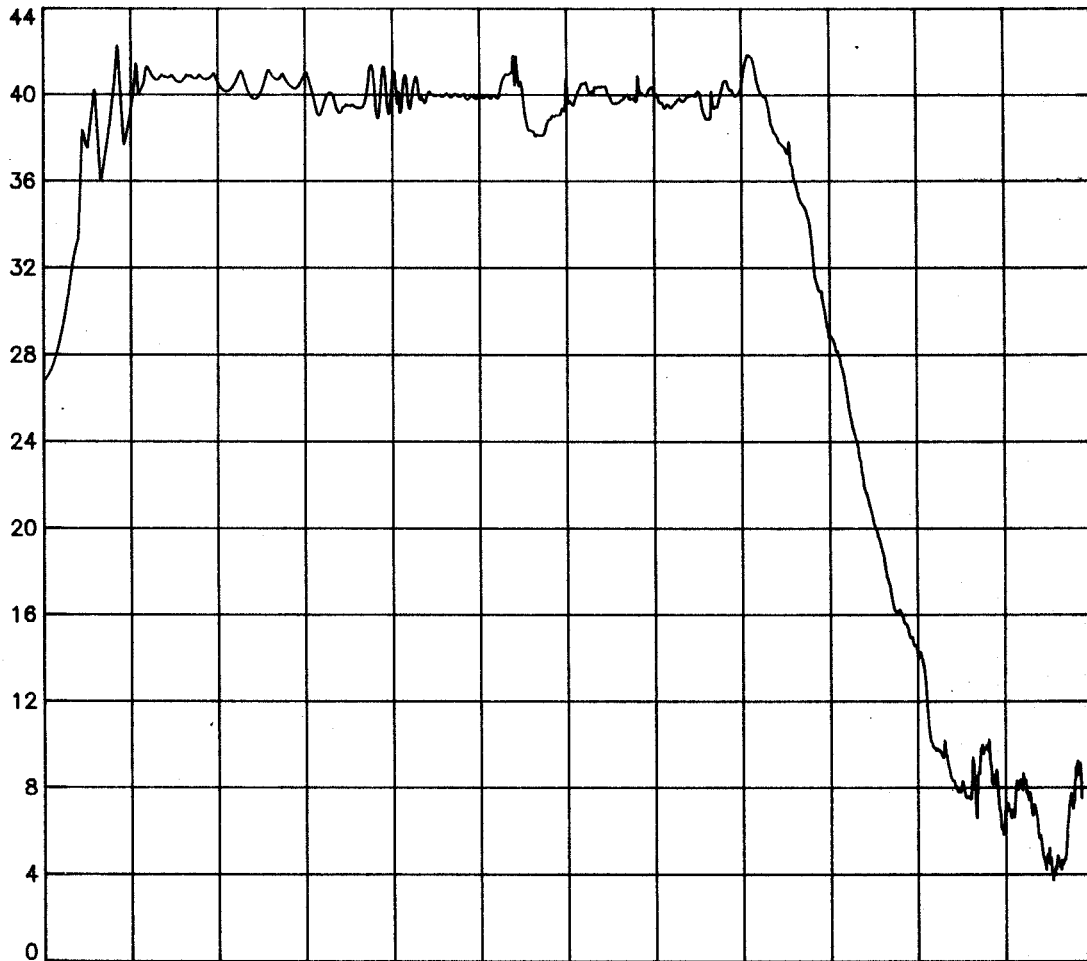
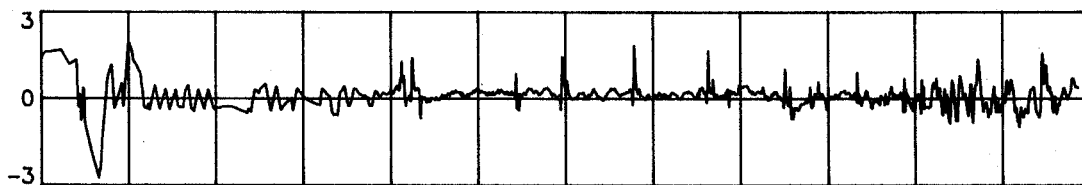


Figure III-5. STS-11 Vbar versus altitude

$\alpha$ , deg



$\beta$ , deg



$\sigma$ , deg

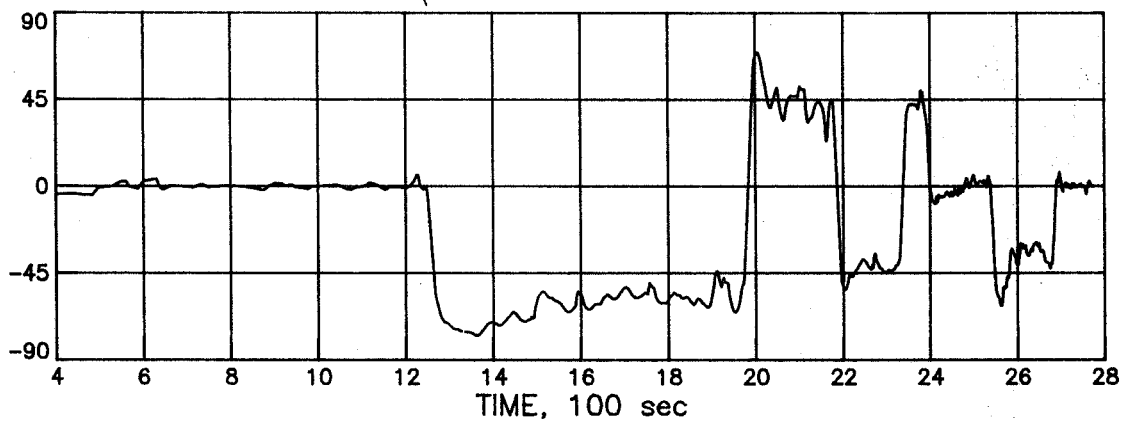
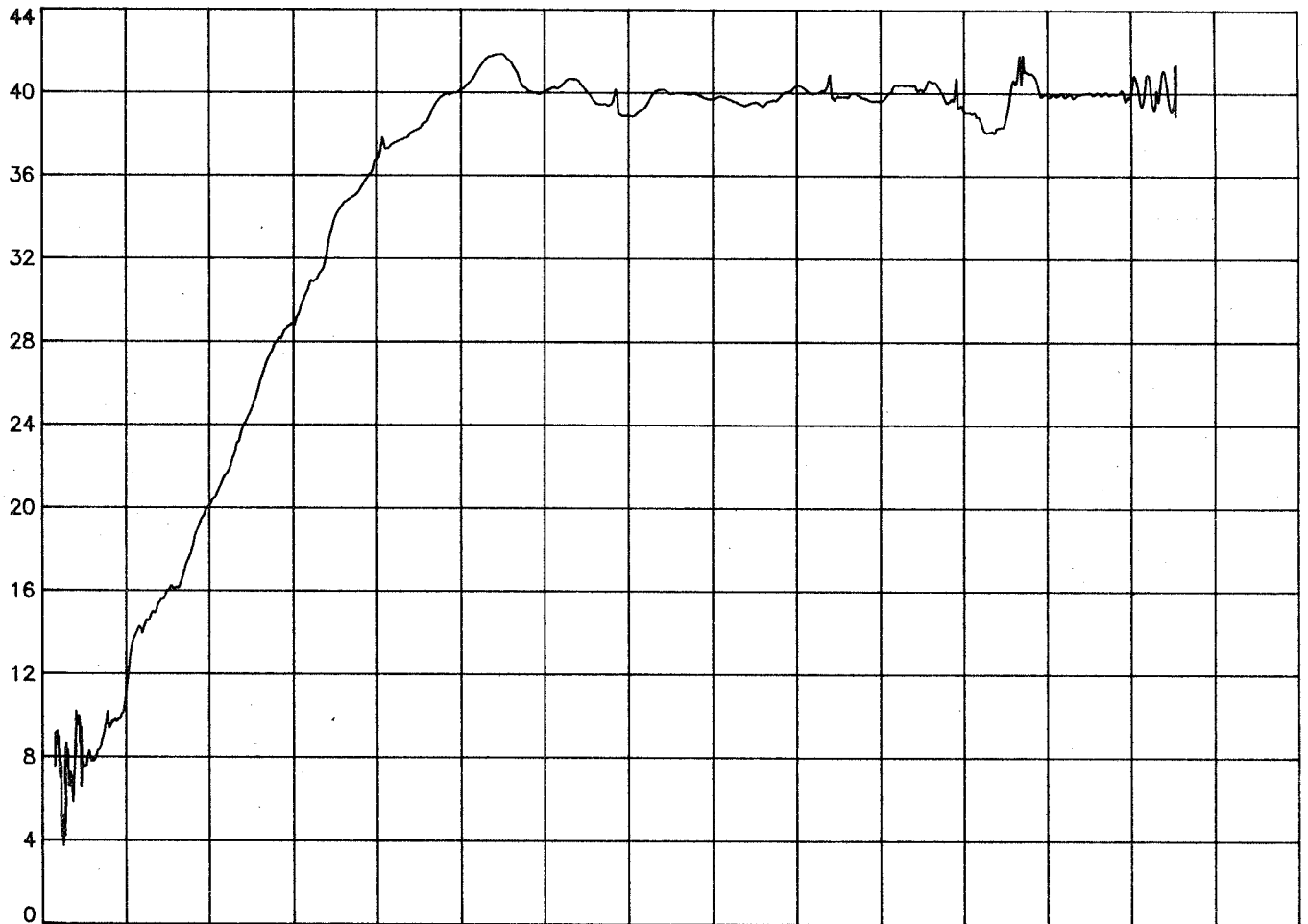
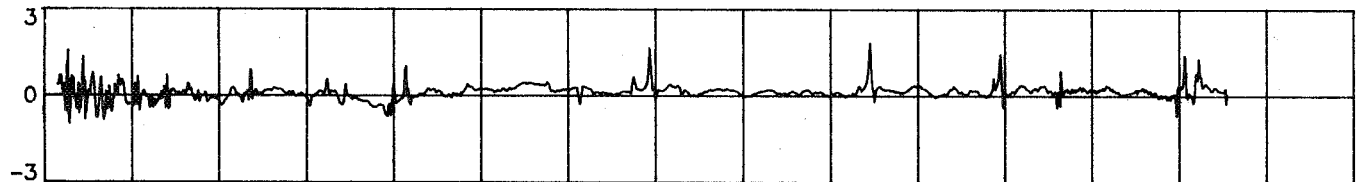


Figure III-6. STS-11  $\alpha$ ,  $\beta$  and  $\sigma$  vs. time

$\alpha$ , deg



$\beta$ , deg



$\sigma$ , deg

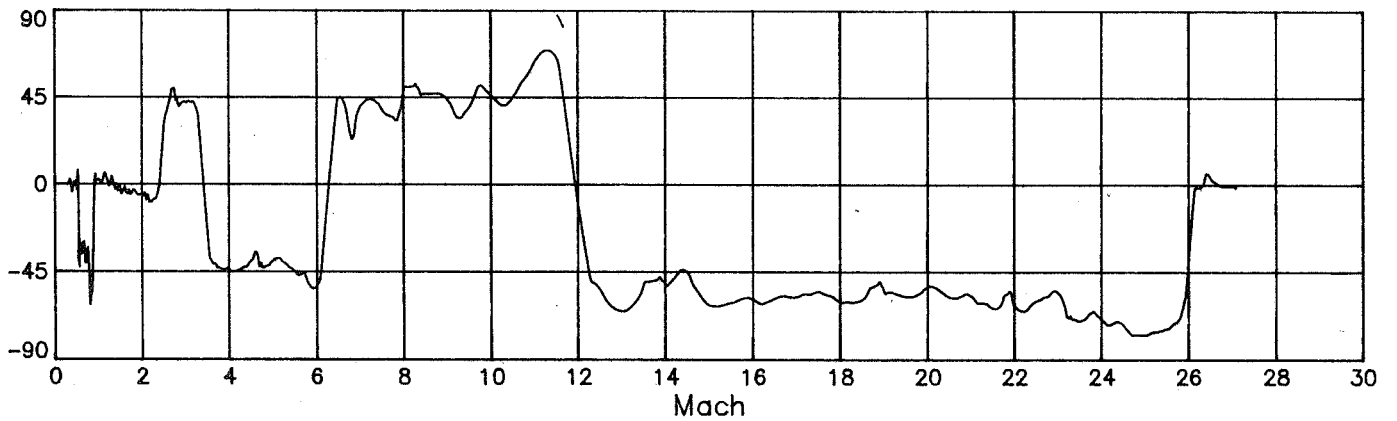
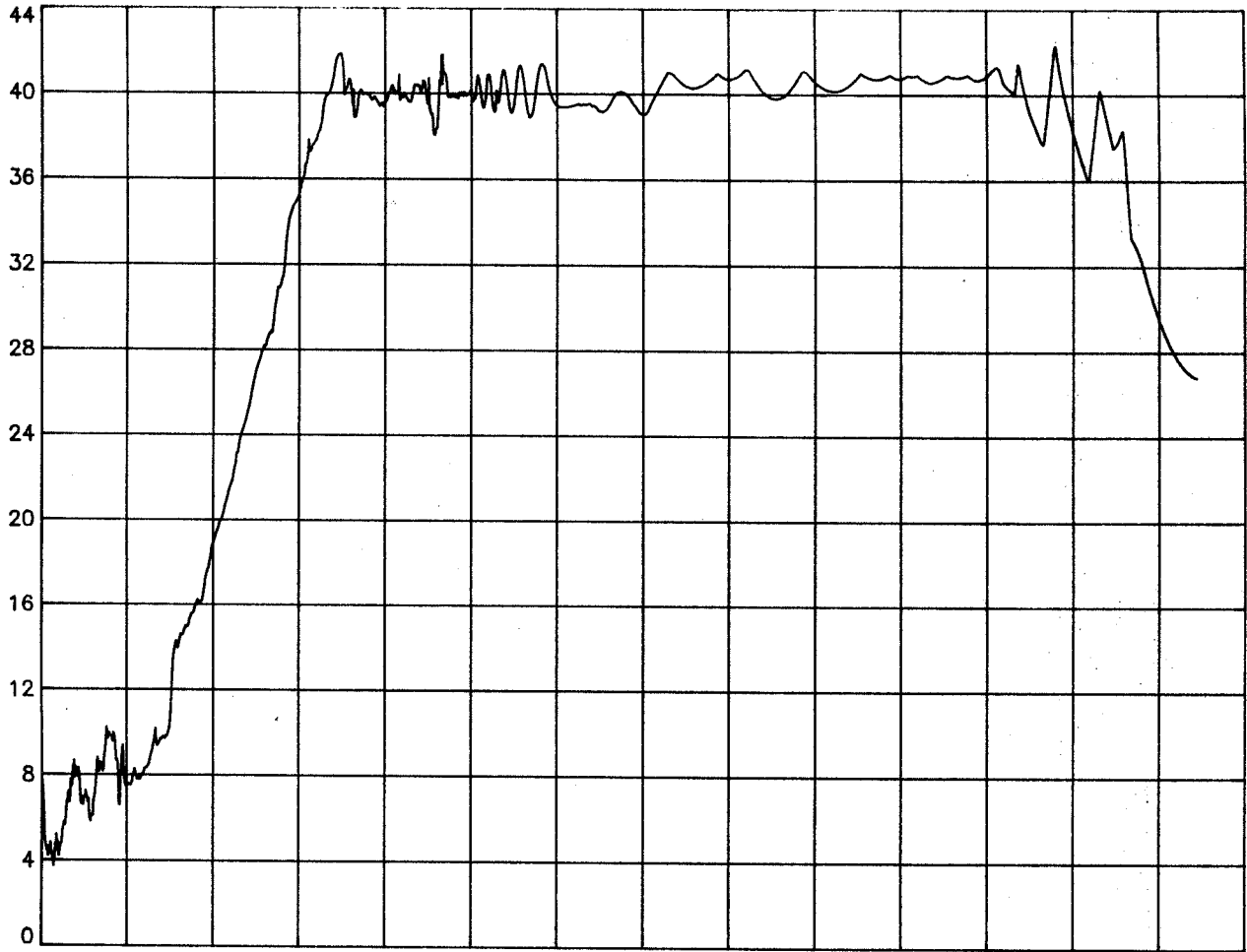
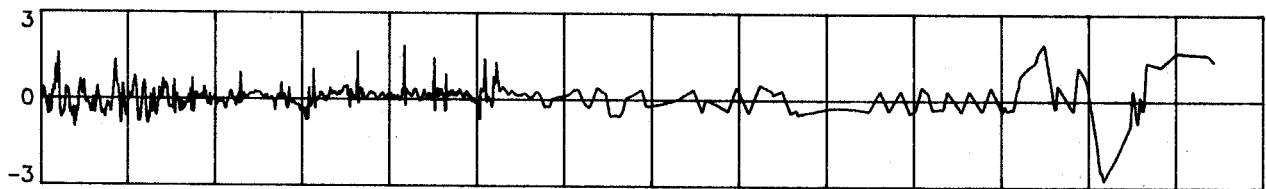


Figure III-7. STS-11  $\alpha$ ,  $\beta$  and  $\sigma$  vs. Mach

$\alpha$ , deg



$\beta$ , deg



$\sigma$ , deg

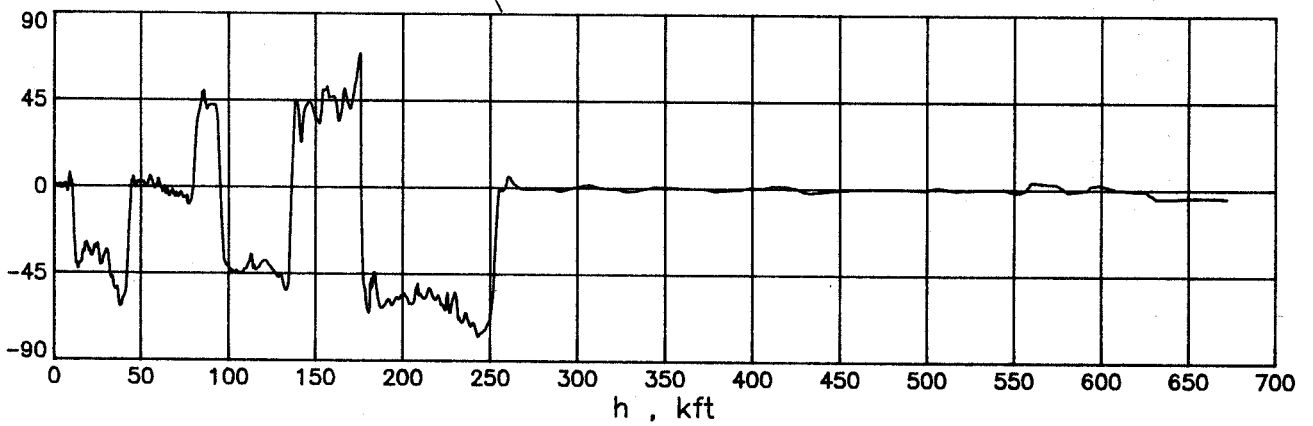
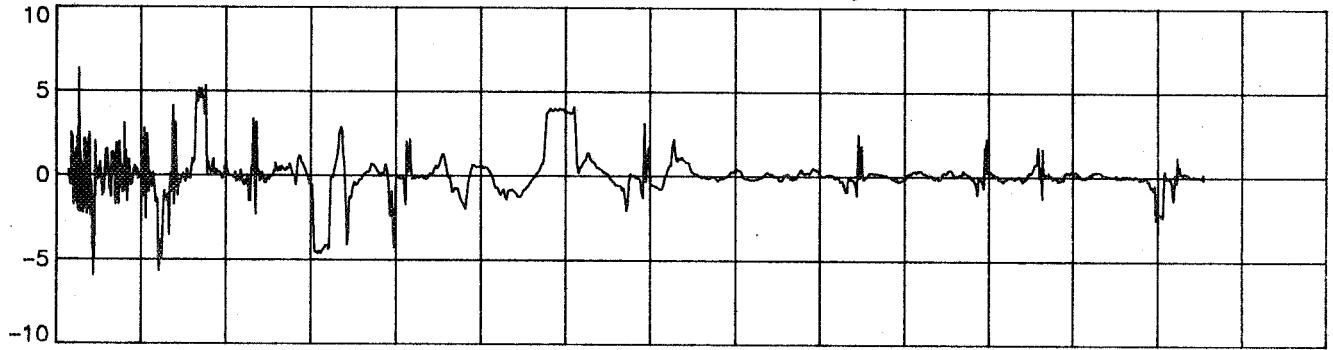
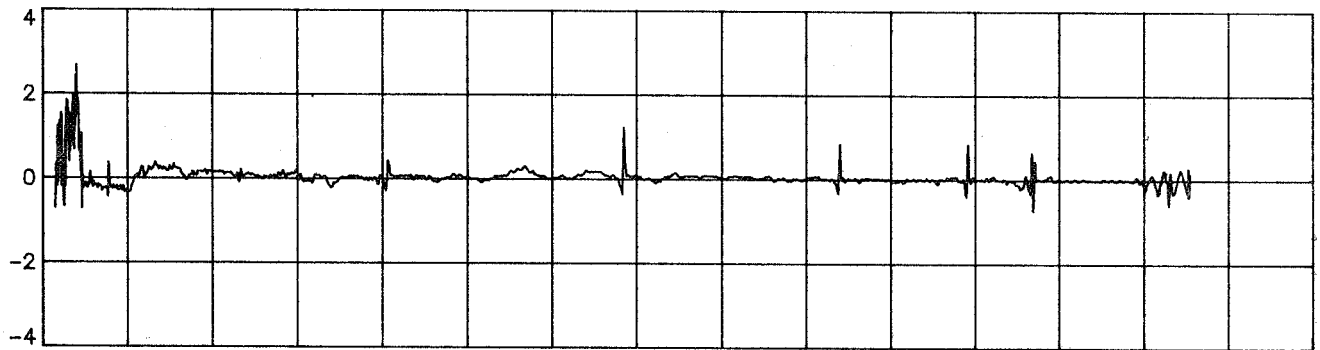


Figure III-8. STS-11  $\alpha$ ,  $\beta$  and  $\sigma$  vs.  $h$

$P_B$ , deg/sec



$Q_B$ , deg/sec



$R_B$ , deg/sec

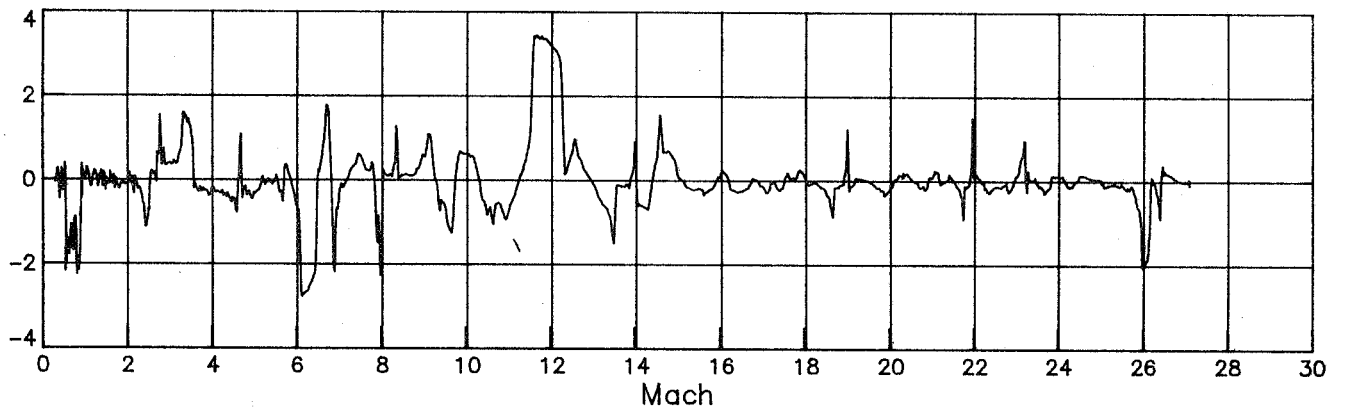


Figure III-9. STS-11 dynamic data vs. Mach

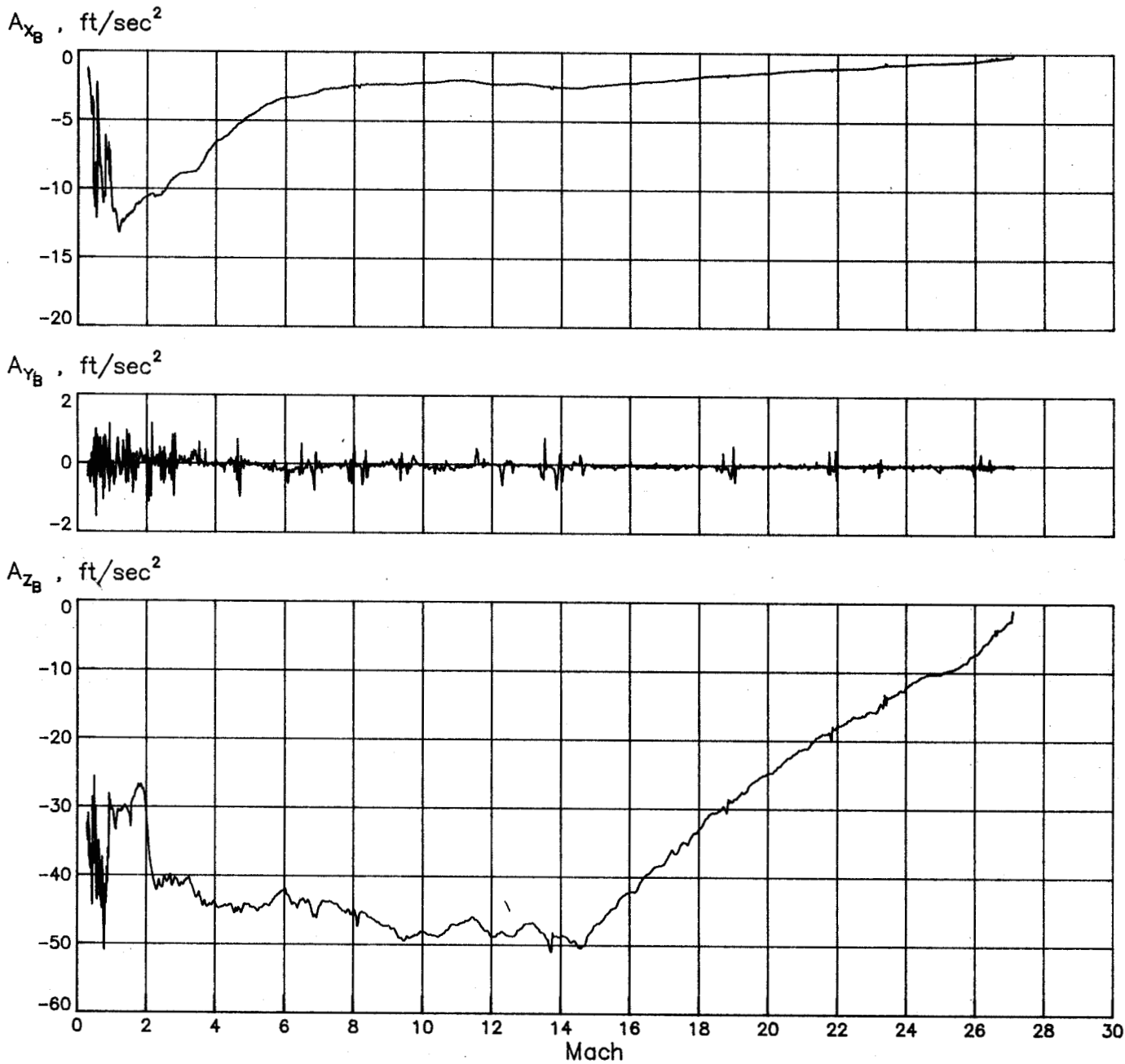
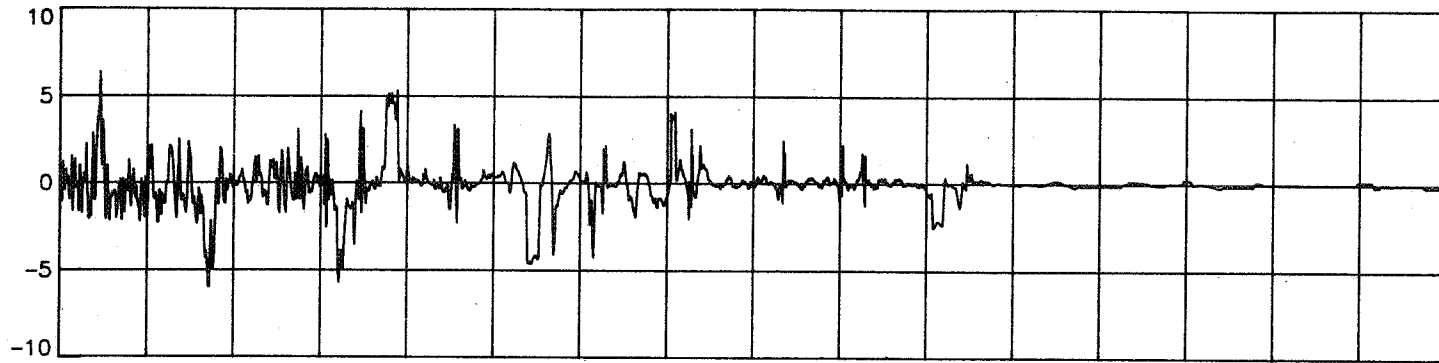
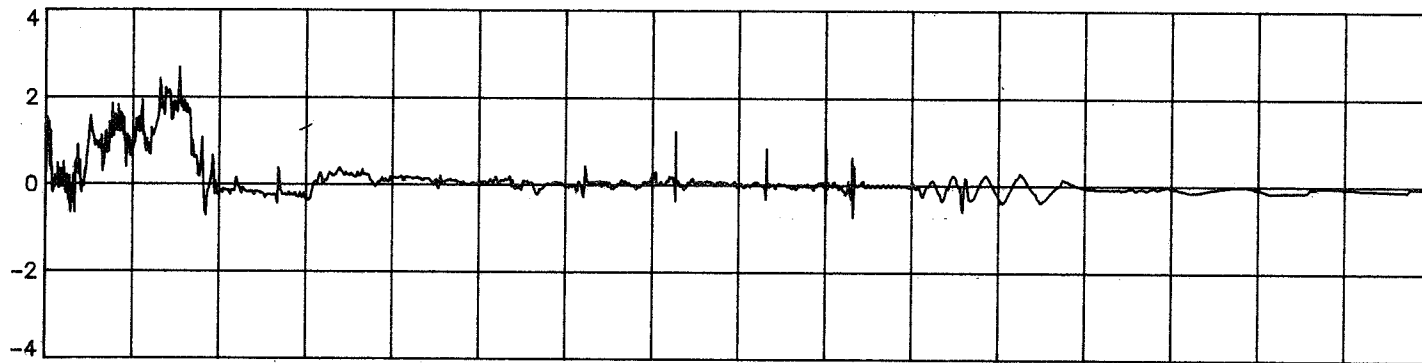


Figure III-9. (concluded)

$P_B$ , deg/sec



$Q_B$ , deg/sec



$R_B$ , deg/sec

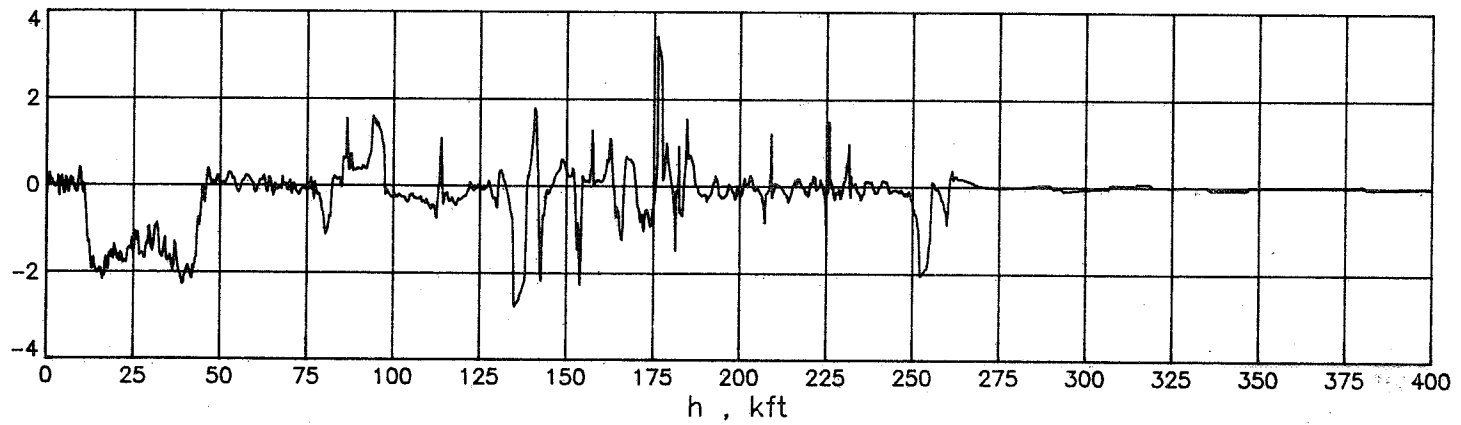
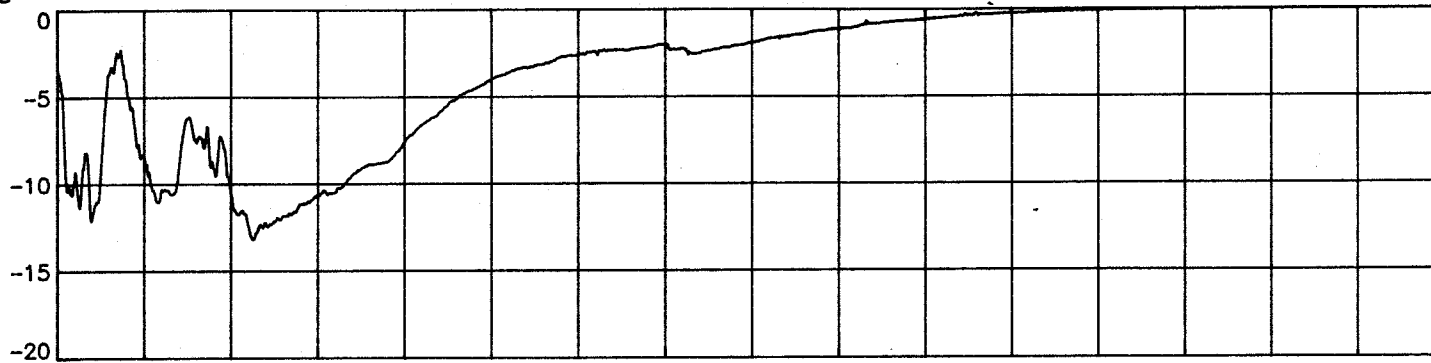


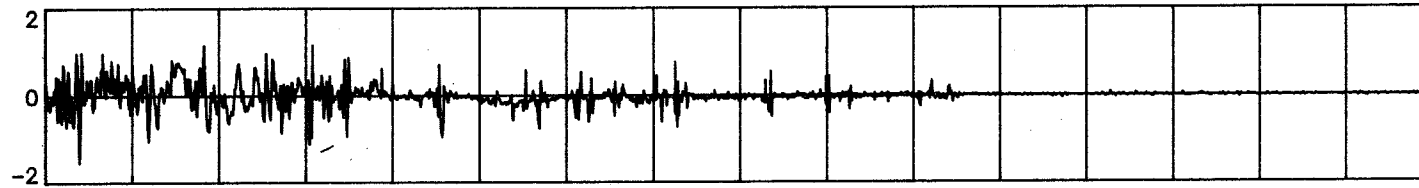
Figure III-10. STS-11 dynamic data vs. altitude



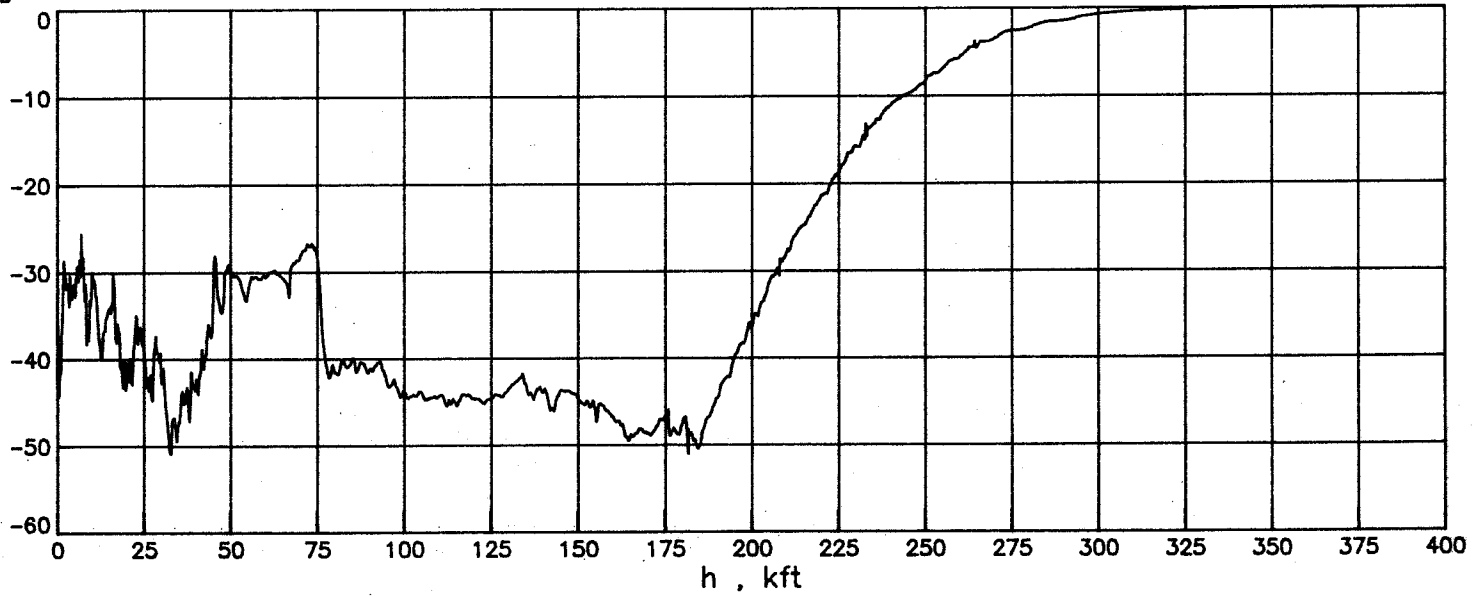
$A_{xB}$ , ft/sec<sup>2</sup>



$A_{yB}$ , ft/sec<sup>2</sup>



$A_{zB}$ , ft/sec<sup>2</sup>



-45-

Figure III-10. (CONCLUDED)

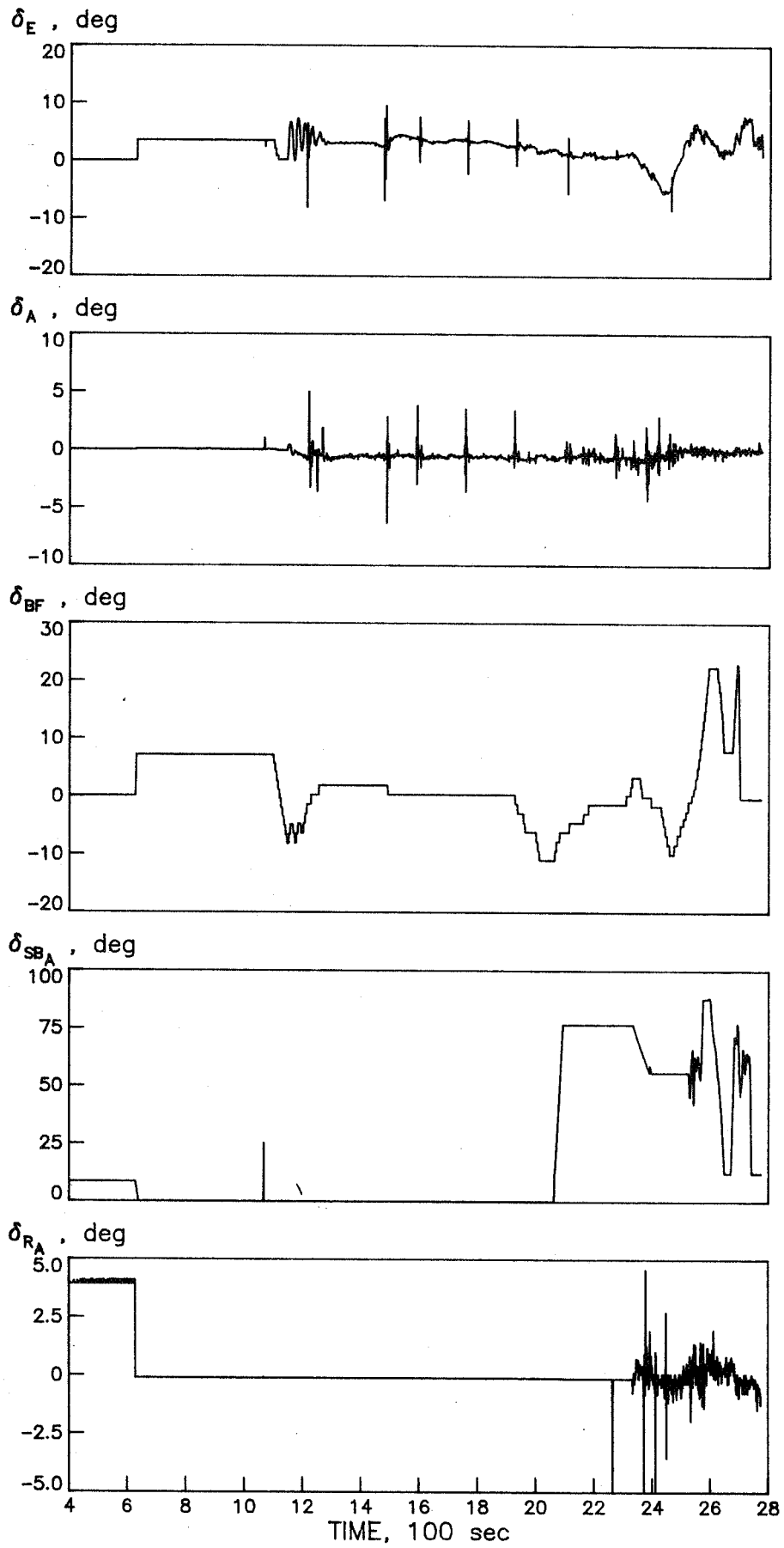


Figure III-11. STS-11 control surfaces vs. time

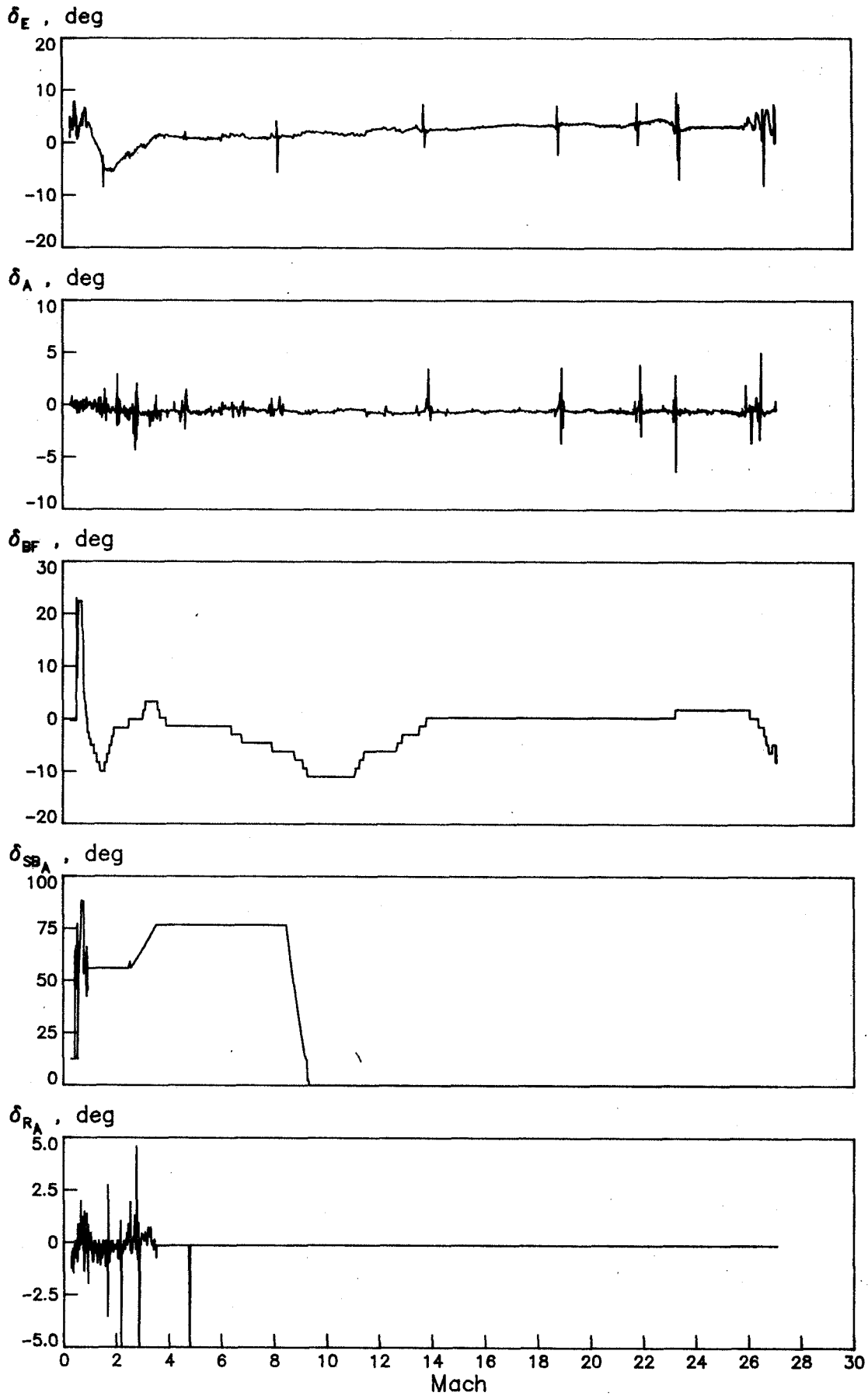


Figure III-12. STS-11 control surfaces vs. Mach

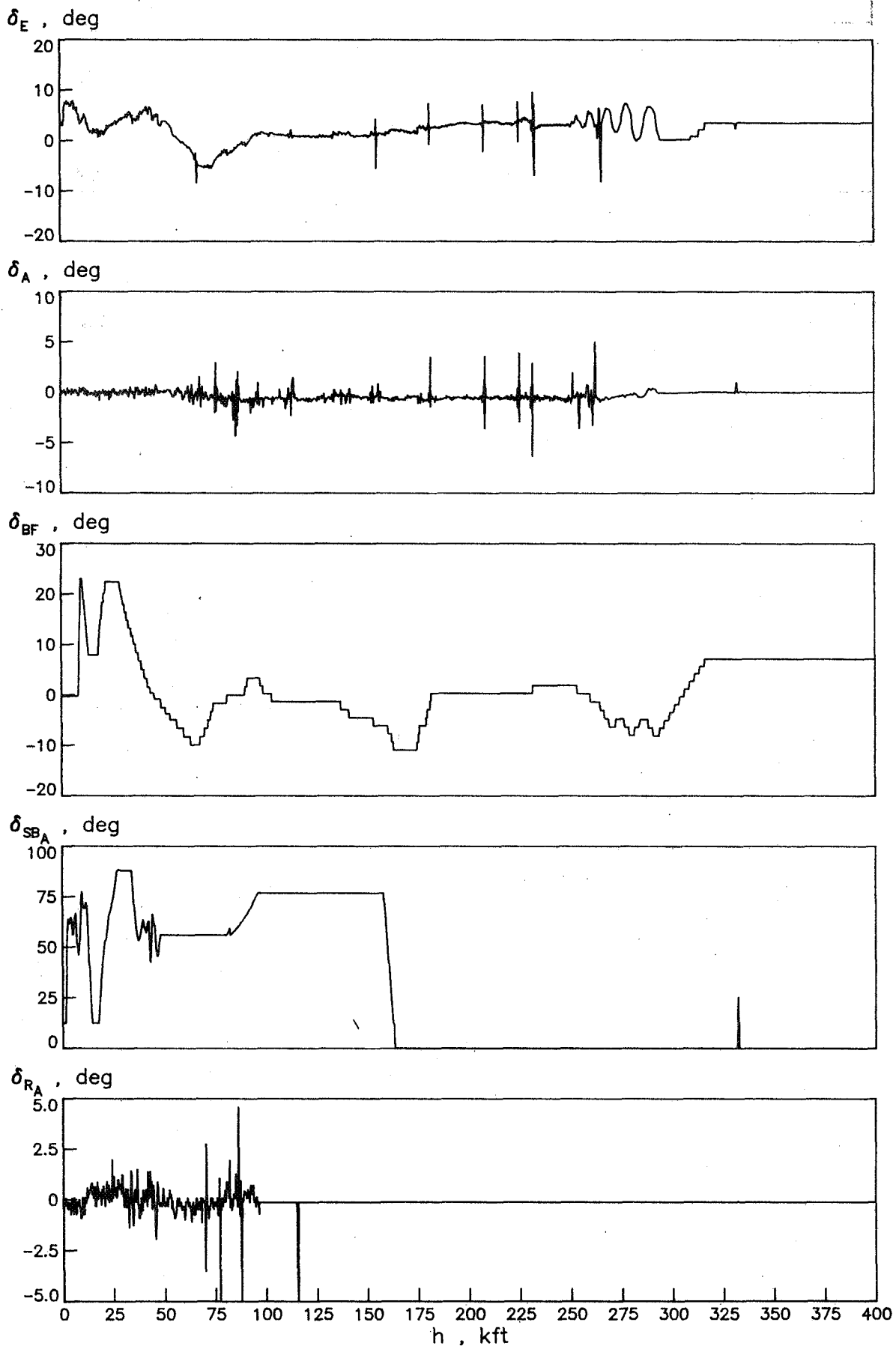


Figure III-13. STS-11 control surfaces vs. altitude

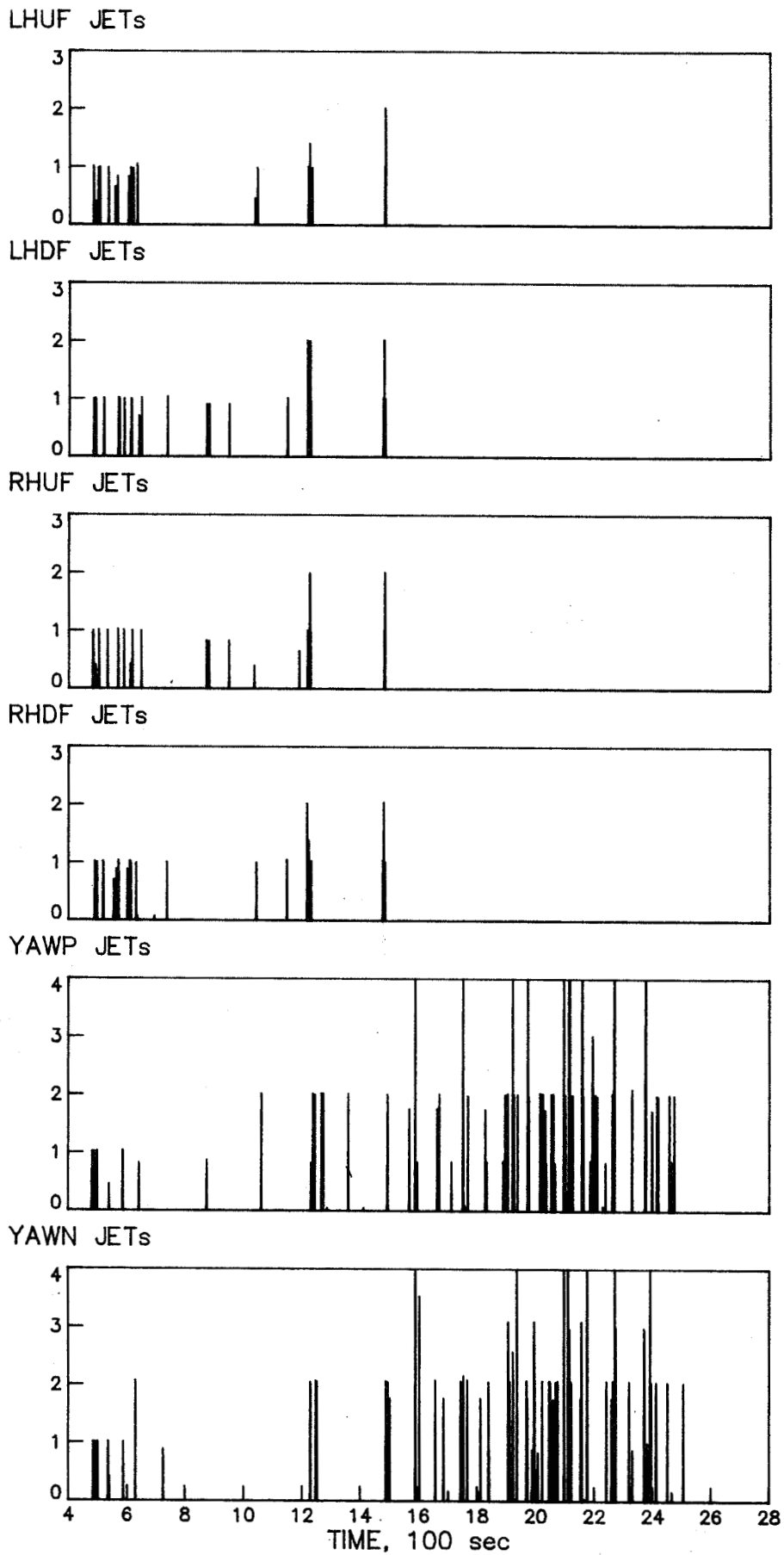
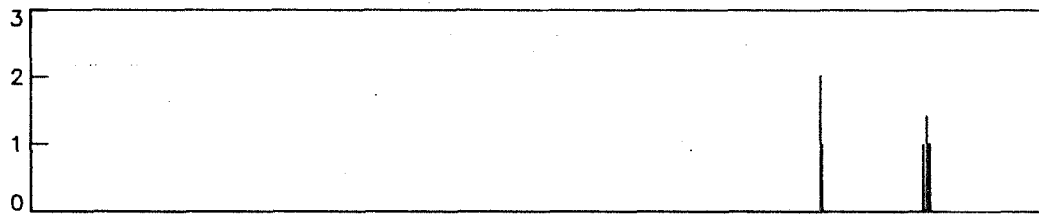
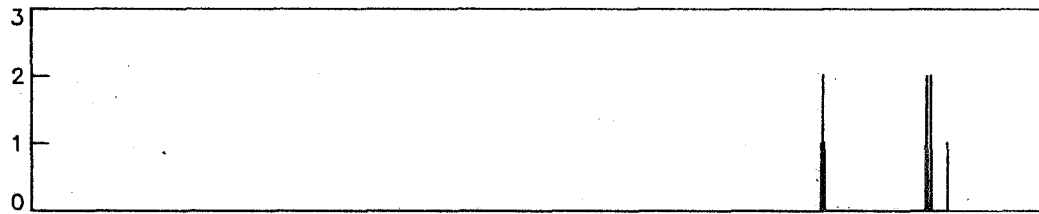


Figure III-14. STS-11 RCS firings vs. time

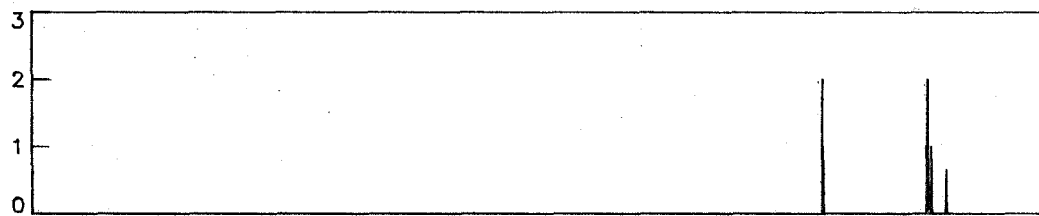
LHUF JETs



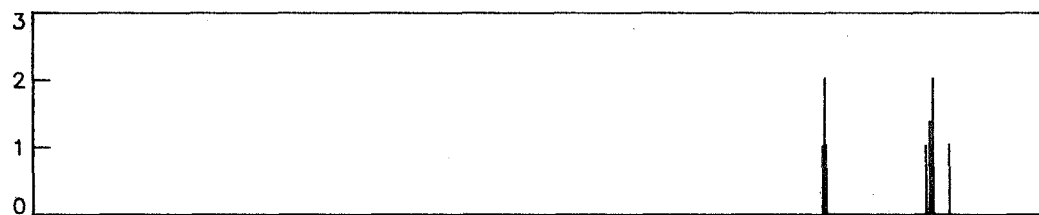
LHDF JETs



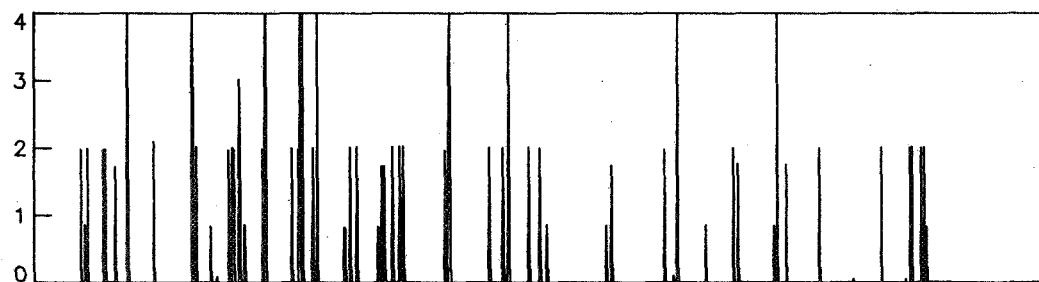
RHUF JETs



RHDF JETs



YAWP JETs



YAWN JETs

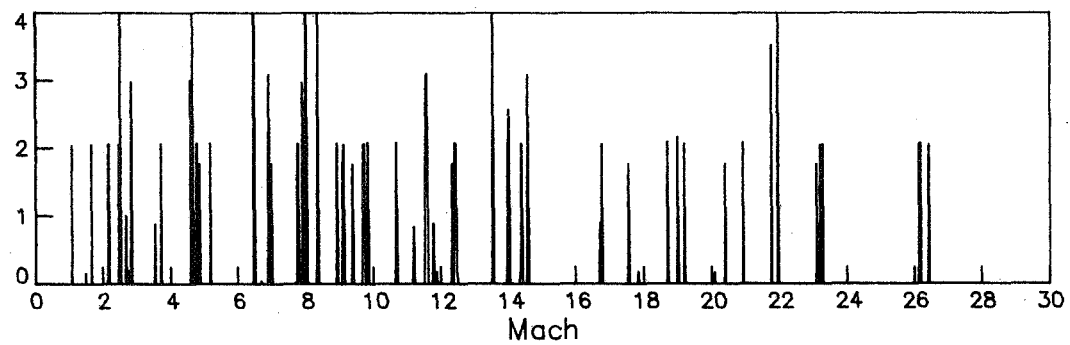
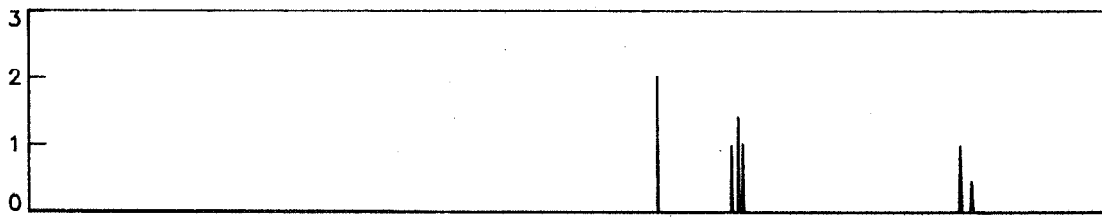
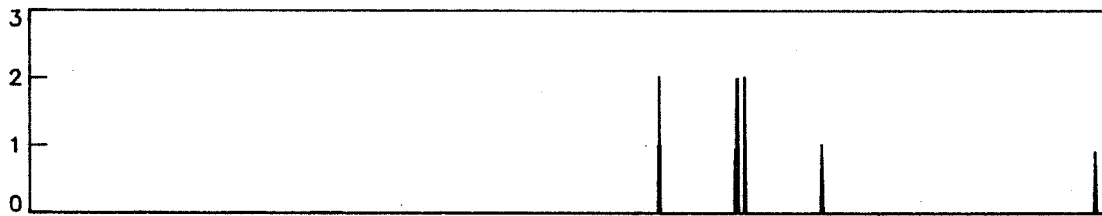


Figure III-15. STS-11 RCS firings vs. Mach

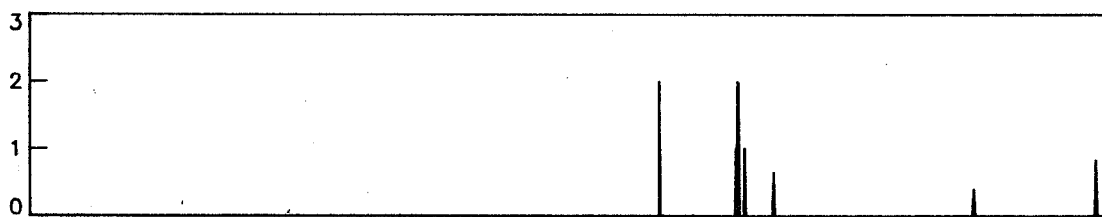
LHUF JETs



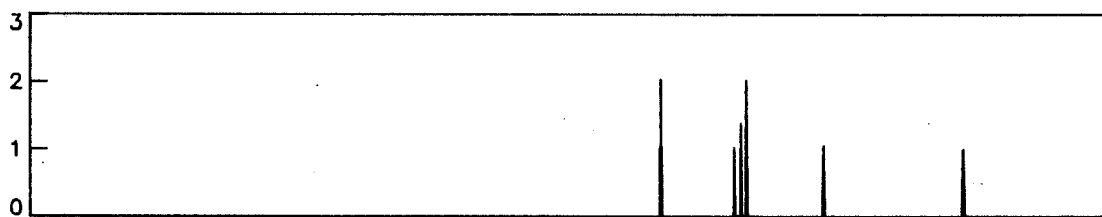
LHDF JETs



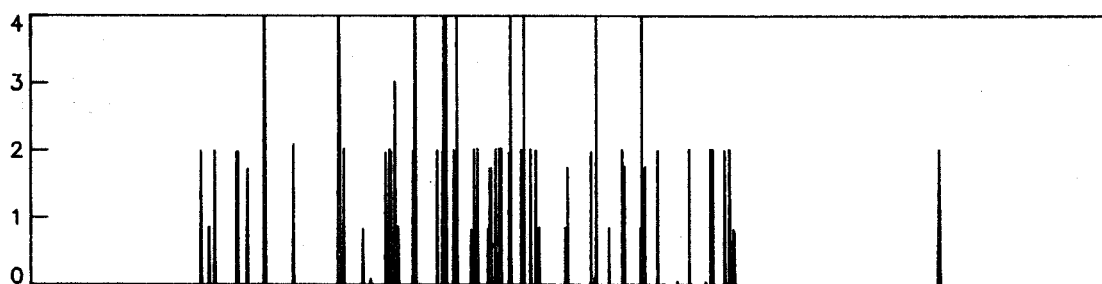
RHUF JETs



RHDF JETs



YAWP JETs



YAWN JETs

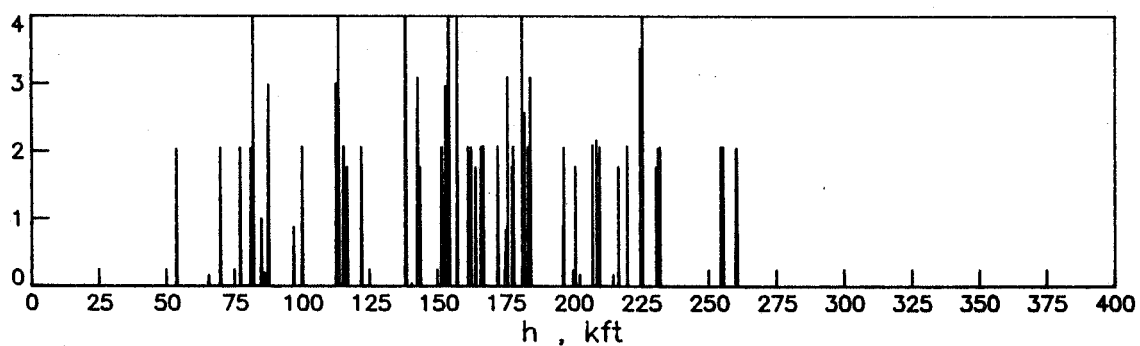


Figure III-16. STS-11 RCS firings vs. altitude

L/D

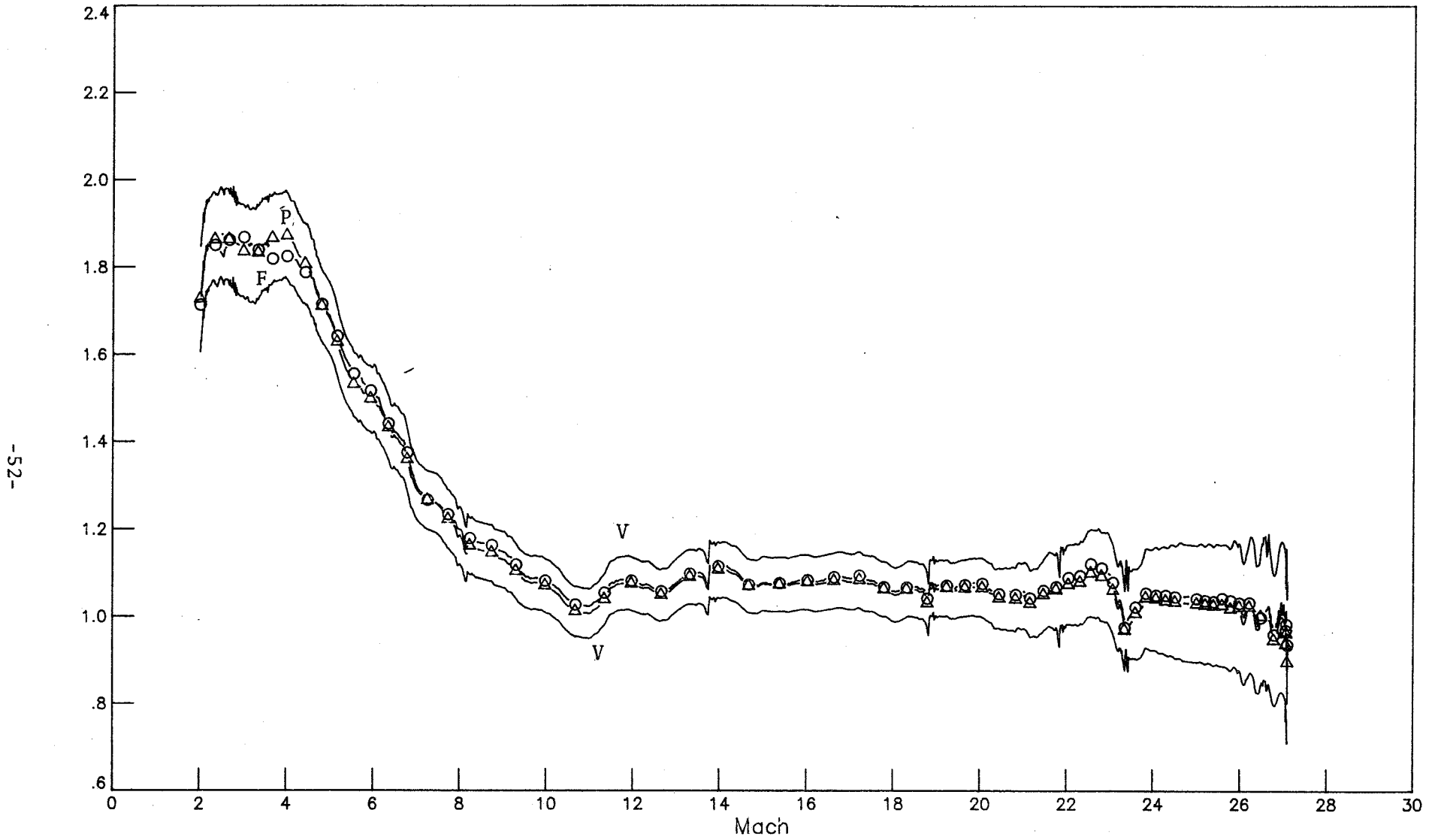


Figure III-17a. STS-11 L/D comparisons vs. Mach



L/D

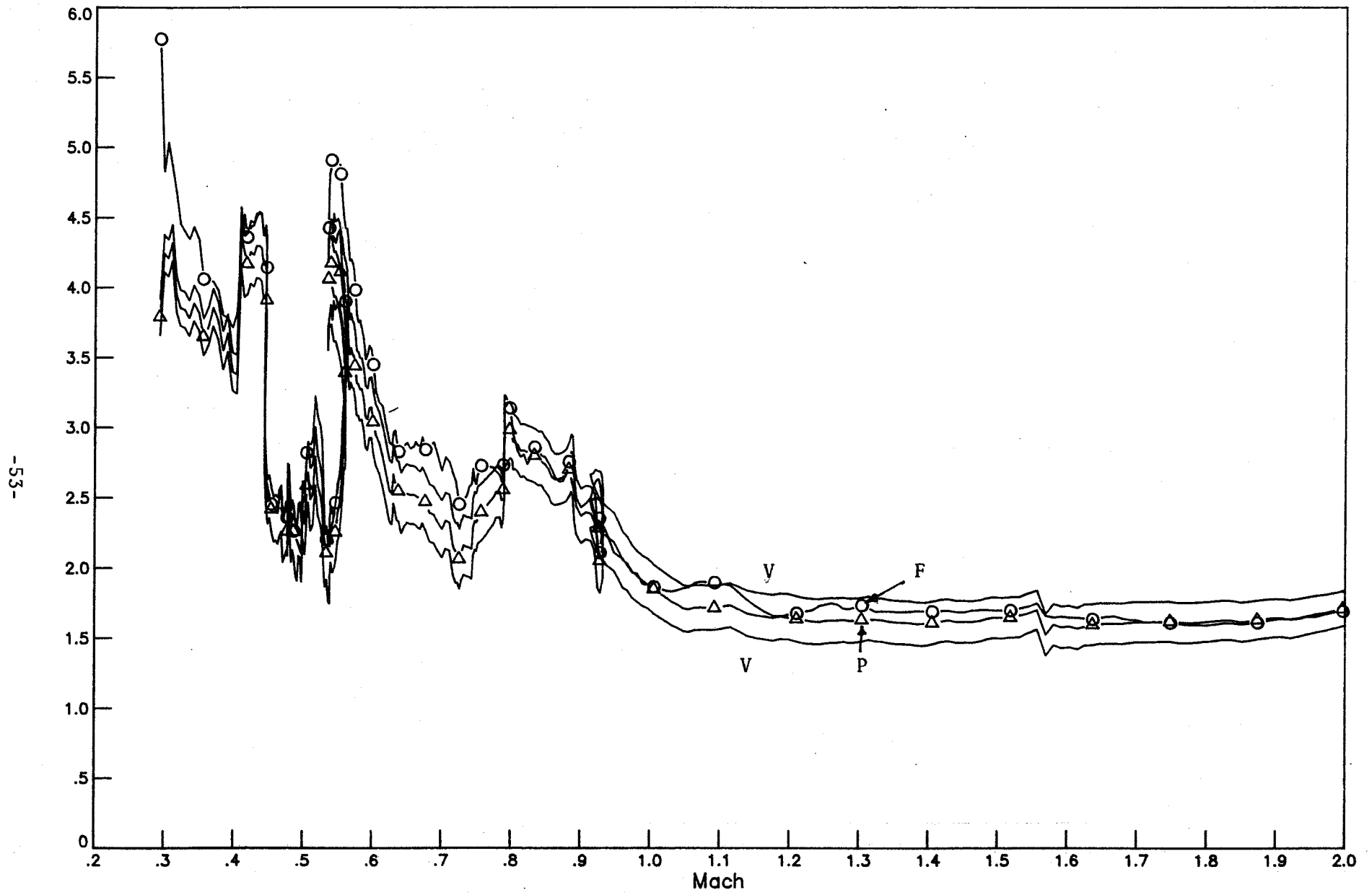
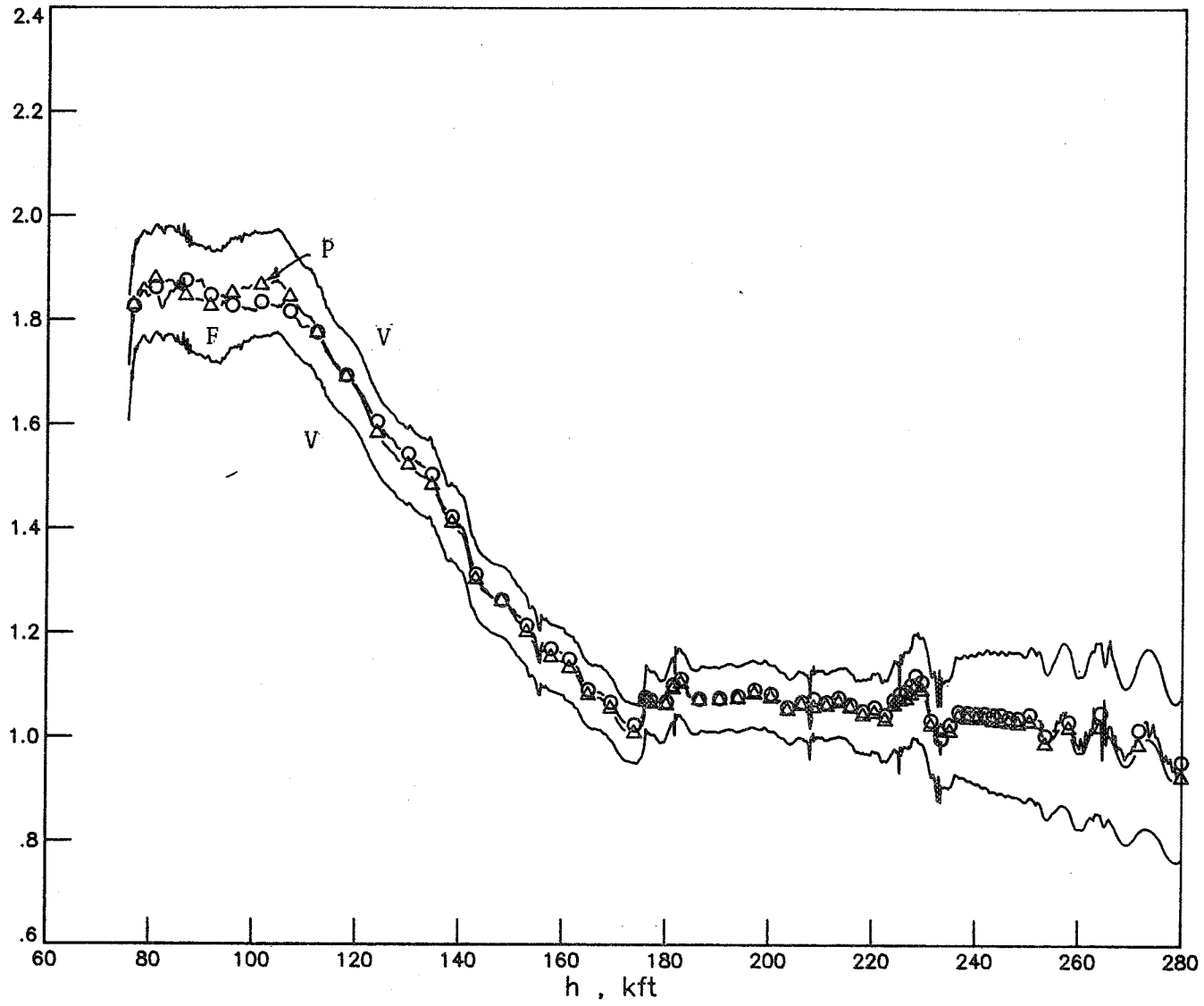


Figure III-17b. STS-11 L/D comparisons vs. Mach

L/D



-54-

Figure III-18a. STS-11 L/D comparisons vs. altitude

L/D

-55-

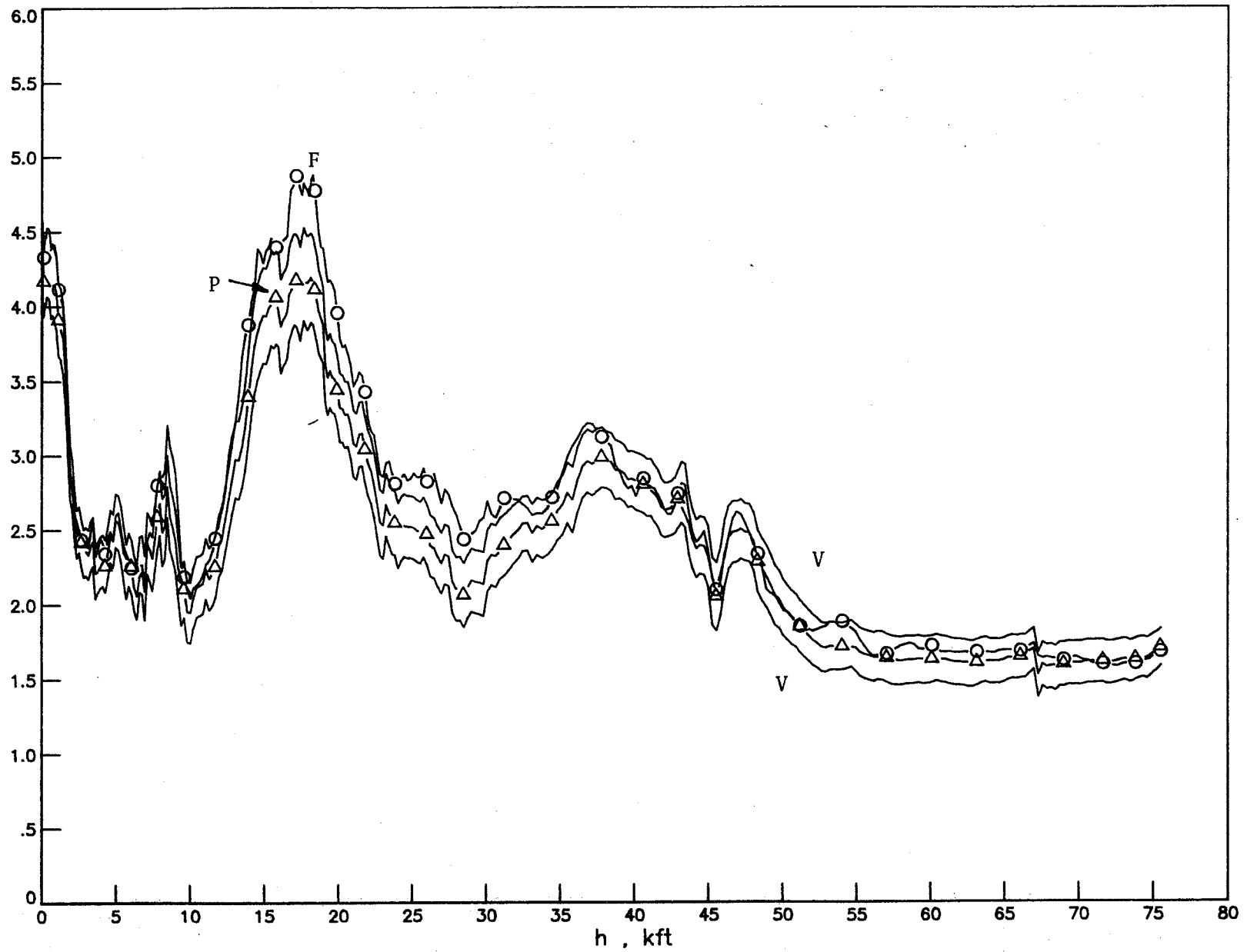


Figure III-18b. STS-11 L/D comparisons vs. altitude

$C_L$

-56-

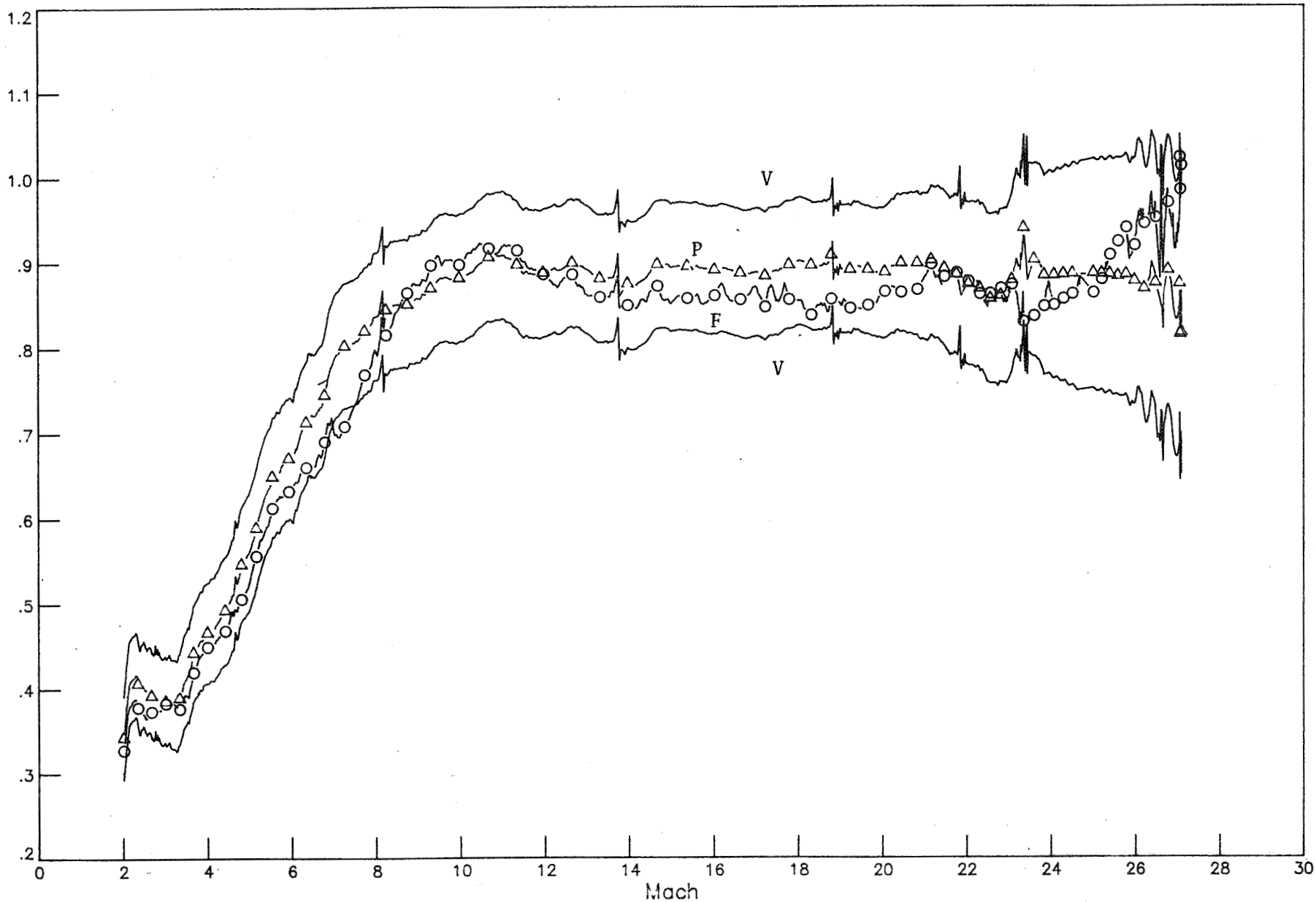


Figure III-19a. STS-11 lift comparisons vs. Mach

$C_L$

-57-

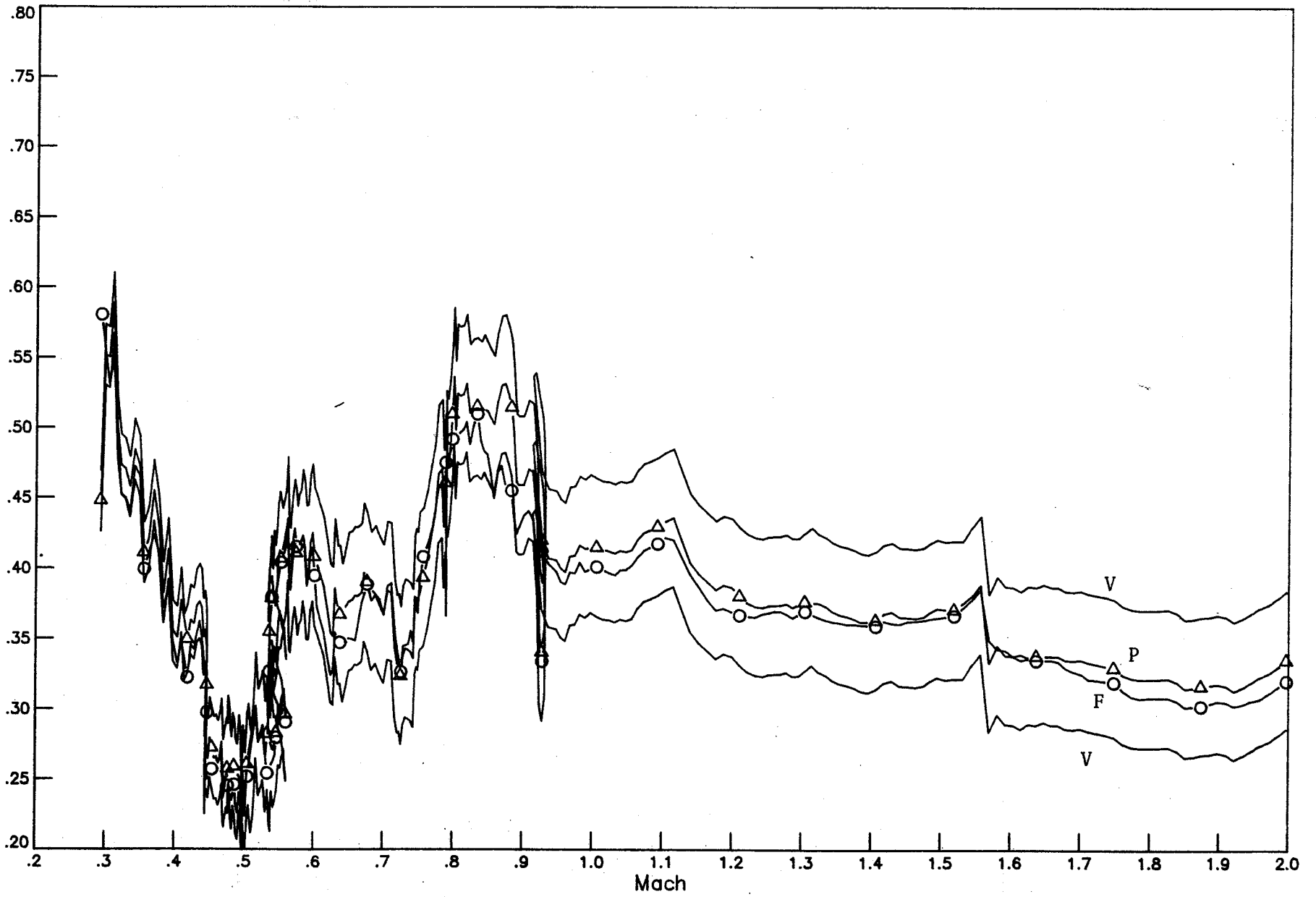
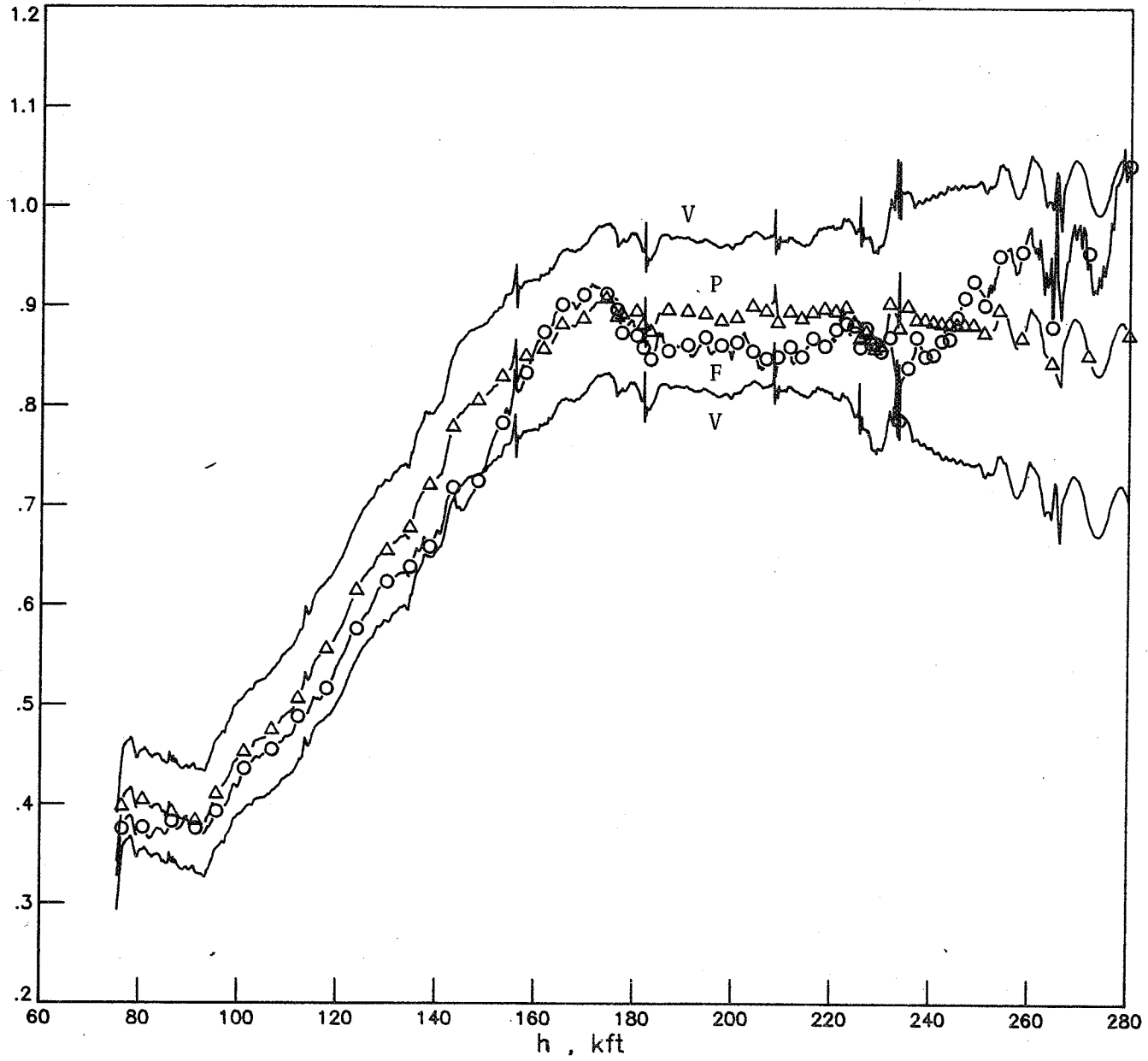


Figure III-19b. STS-11 lift comparisons vs. Mach

$C_L$



-58-

Figure III-20a. STS-11 lift comparisons vs. altitude

$C_L$

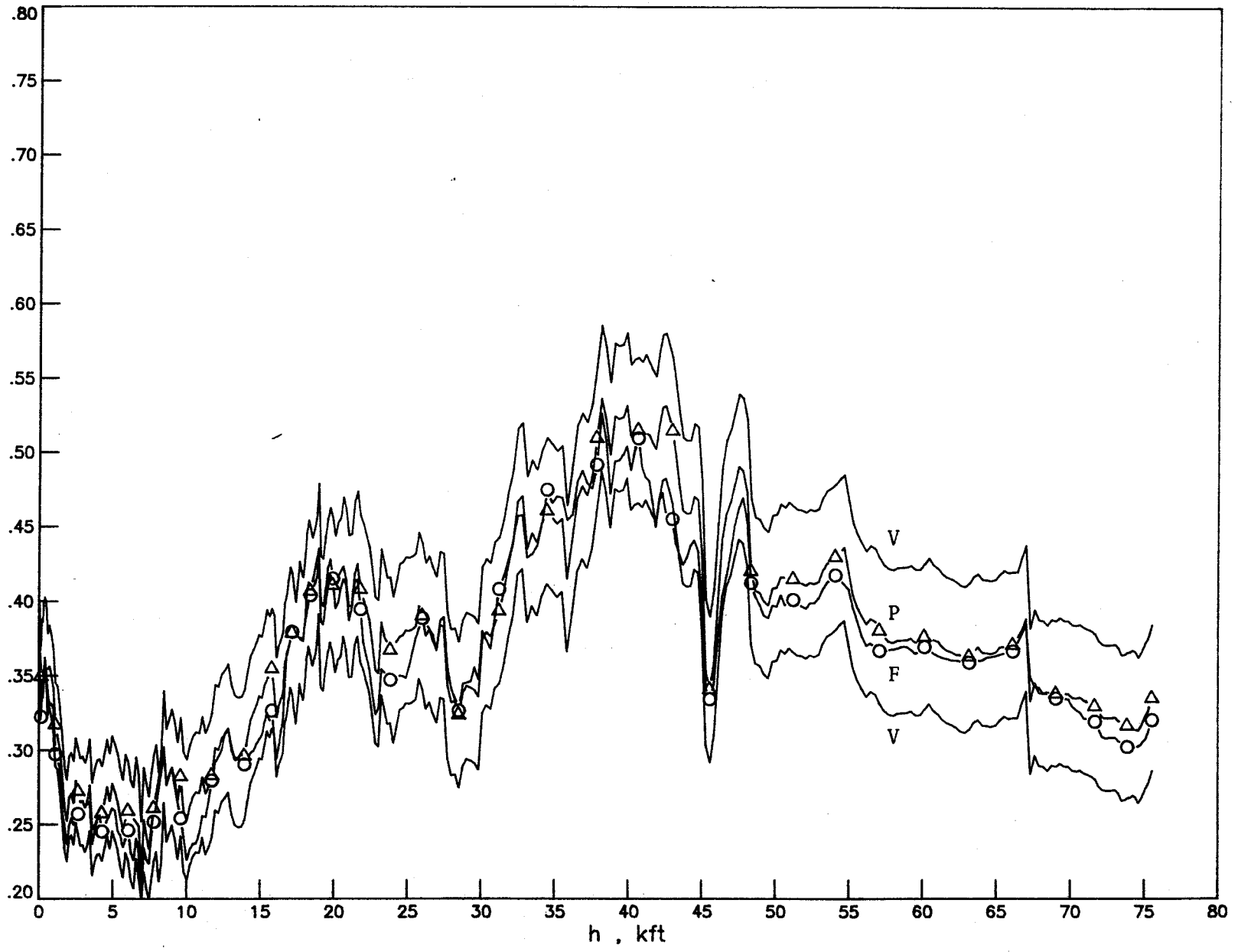


Figure III-20b. STS-11 lift comparisons vs. altitude

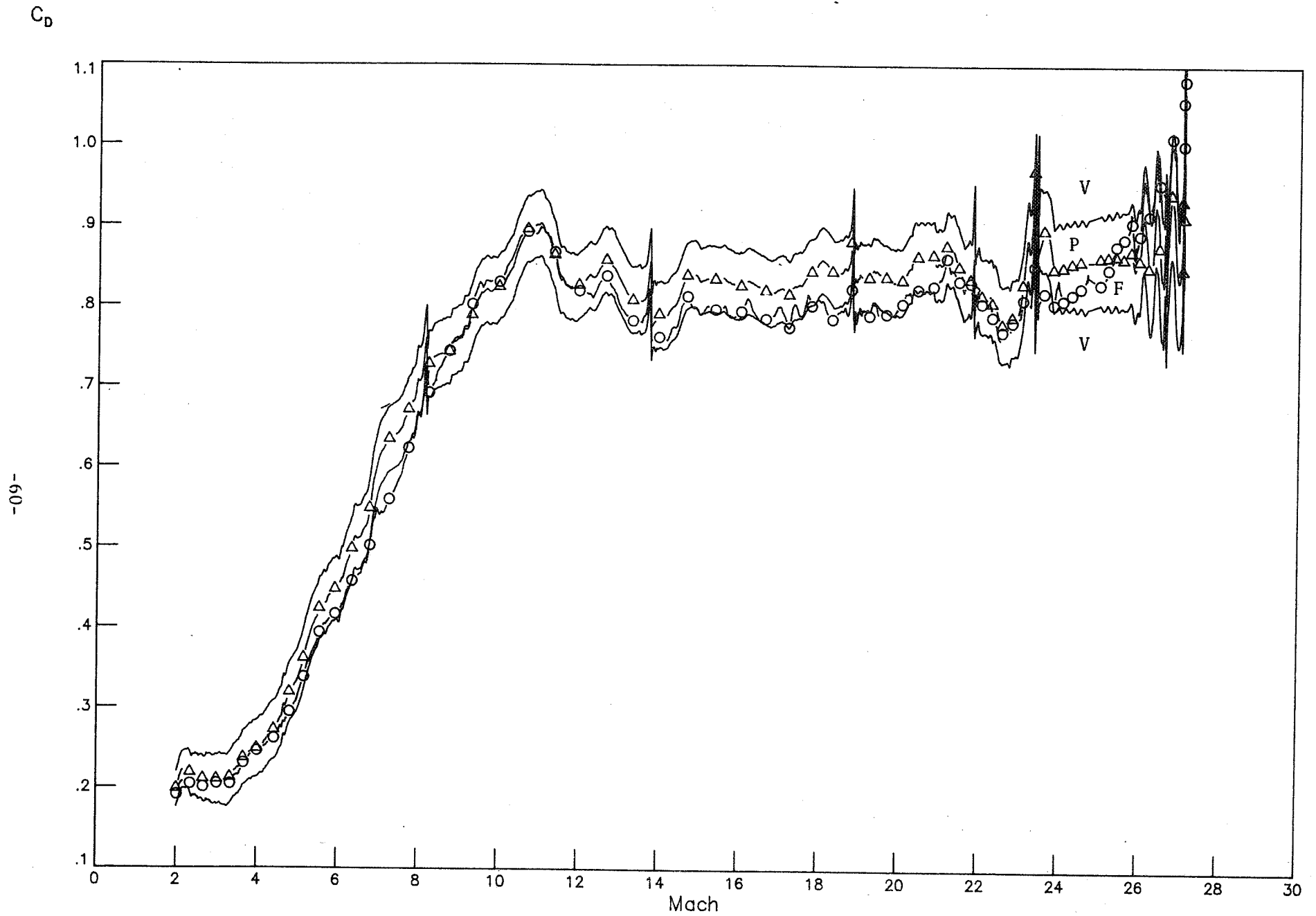


Figure III-21a. STS-11 drag comparisons vs. Mach



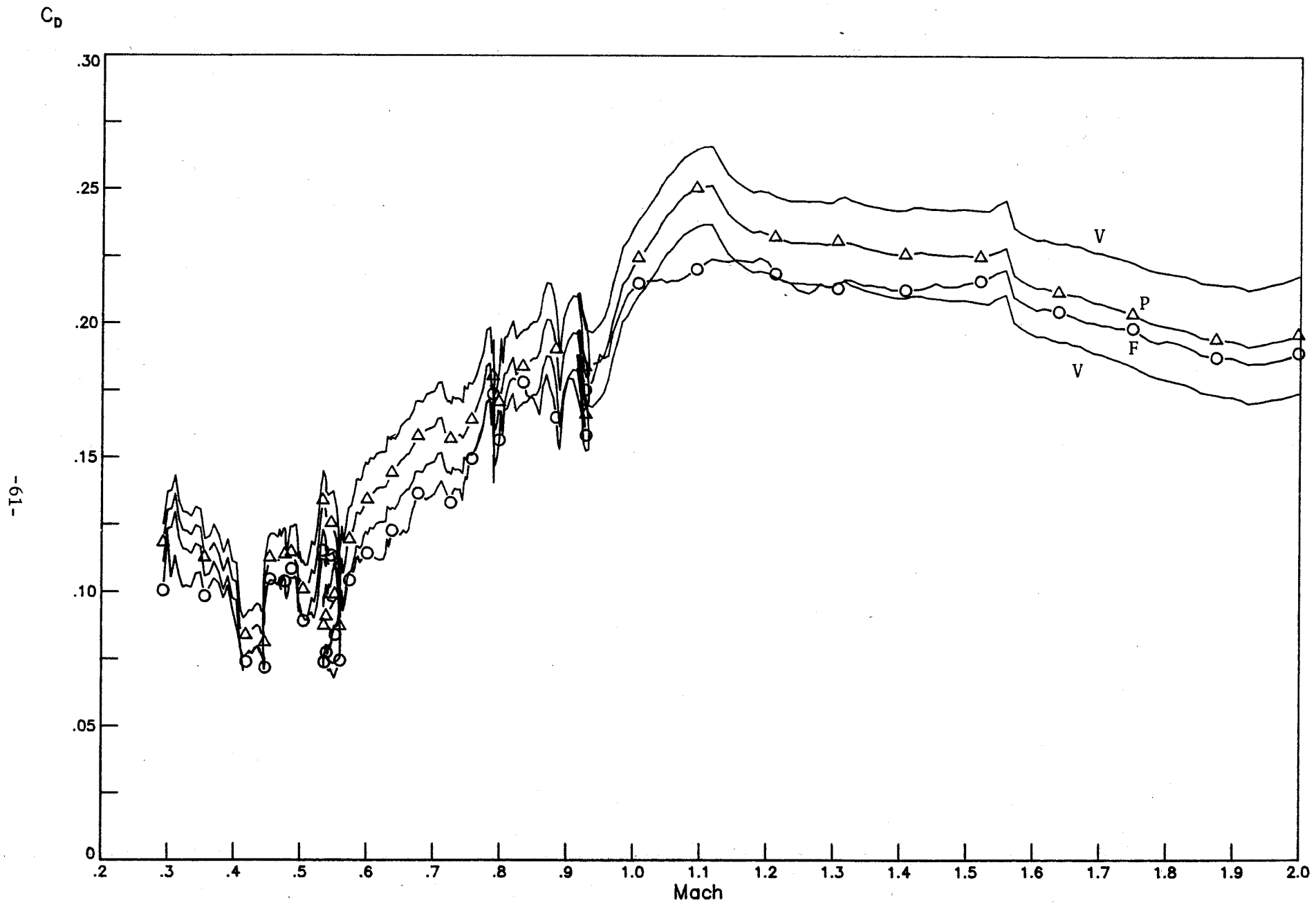


Figure III-21b. STS-11 drag comparisons vs. Mach

$C_D$

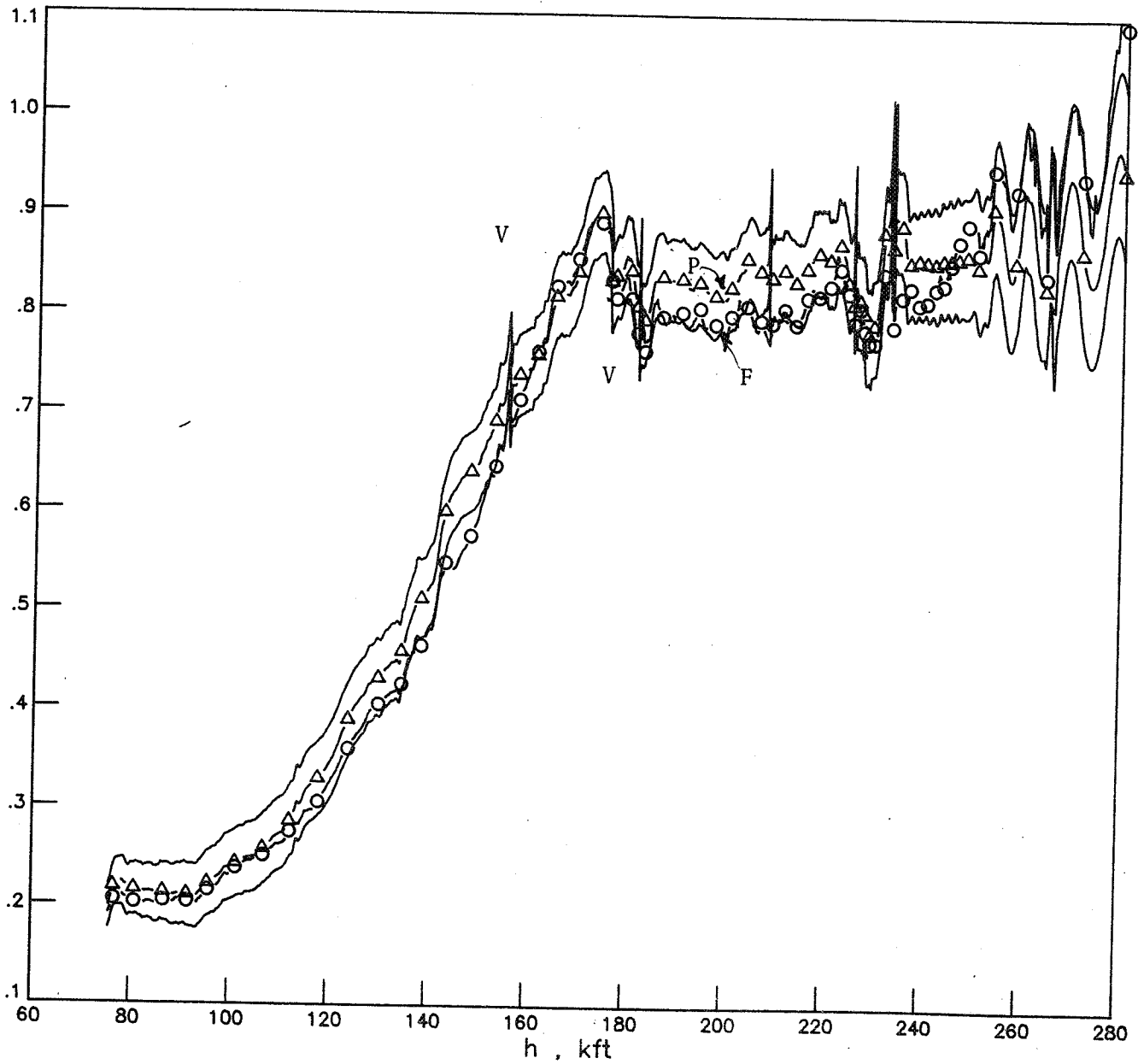


Figure III-22a. STS-11 drag comparisons vs. altitude

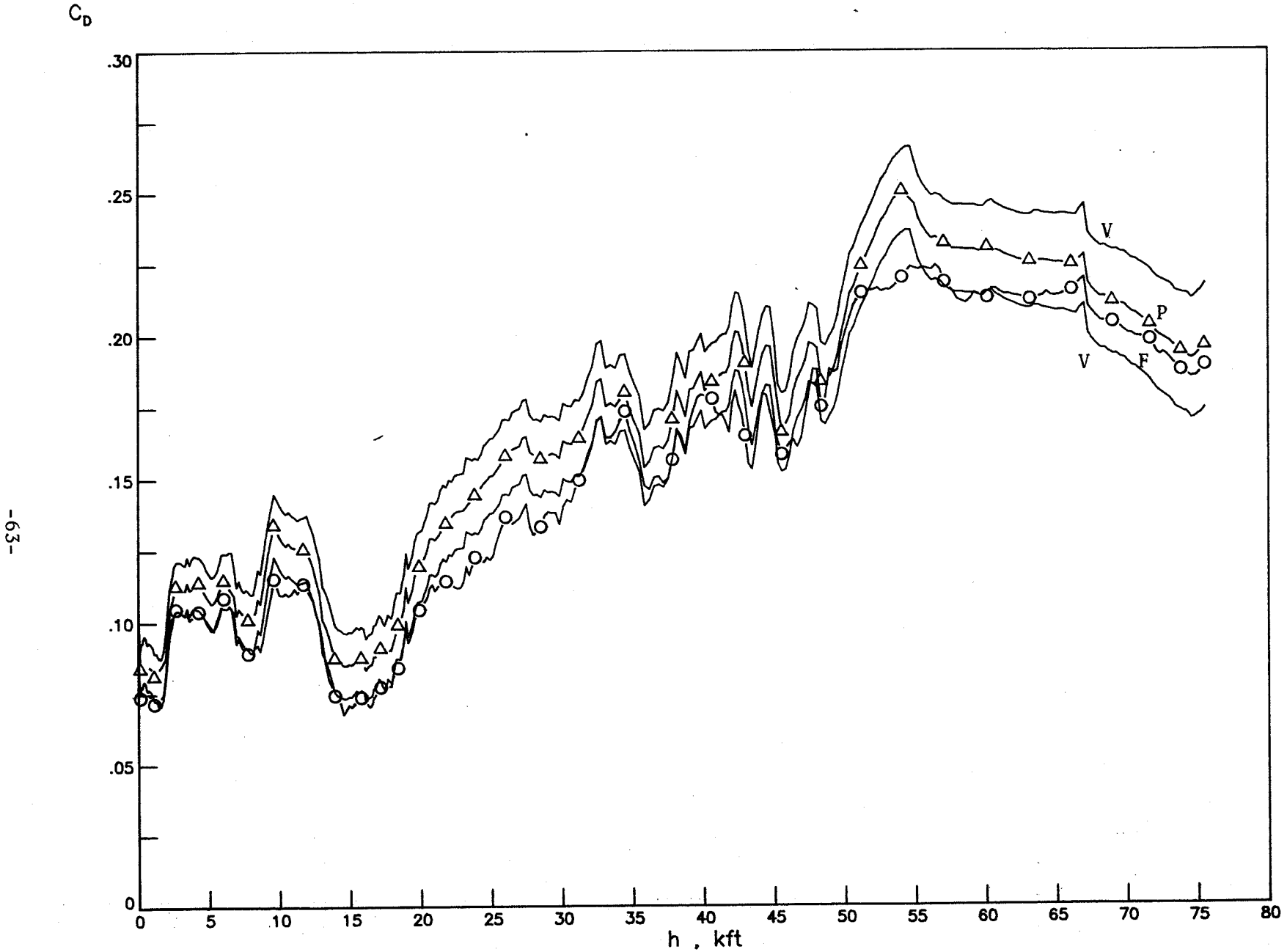
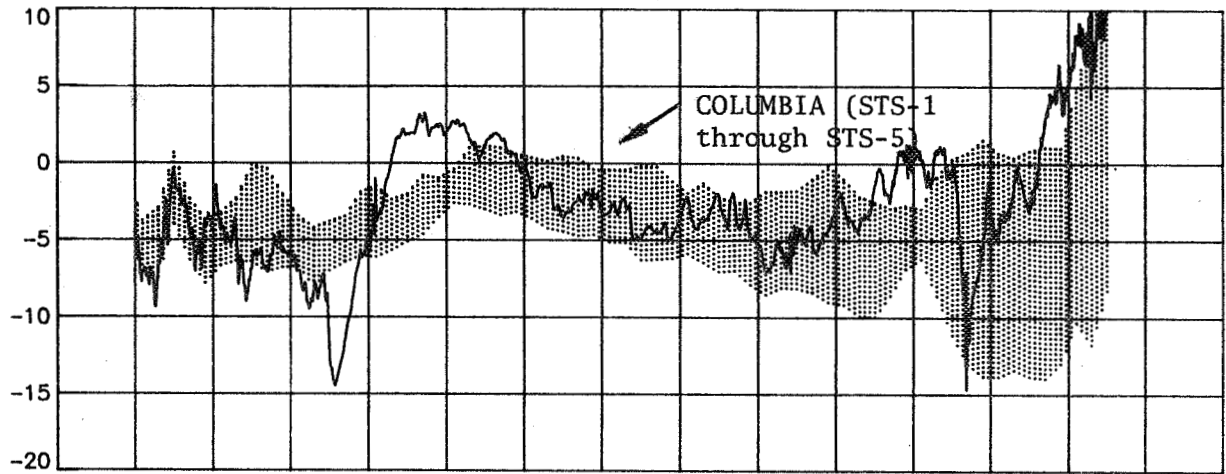
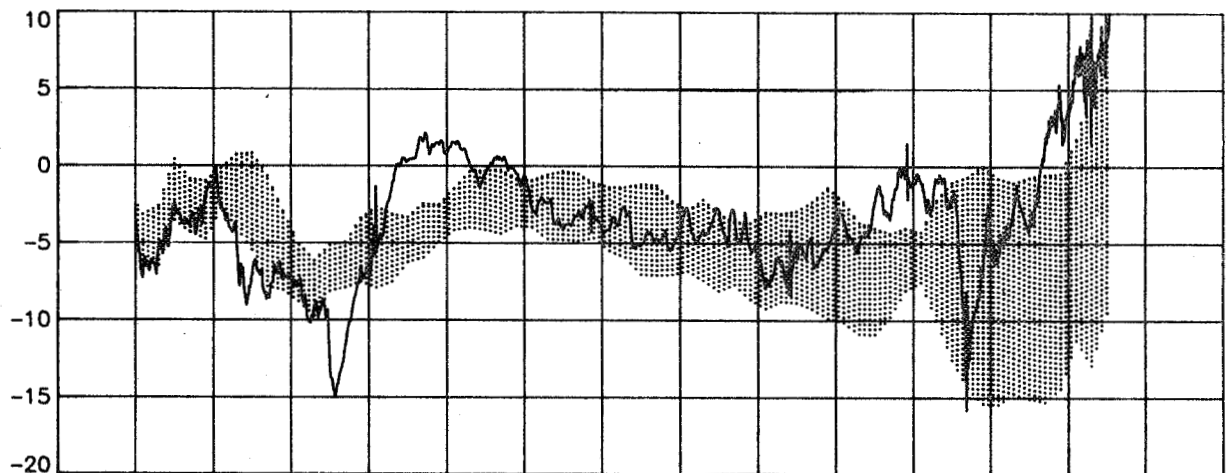


Figure III-22b. STS-11 drag comparisons vs. altitude

$\Delta C_L$ , percent



$\Delta C_D$ , percent



$\Delta(L/D)$ , percent

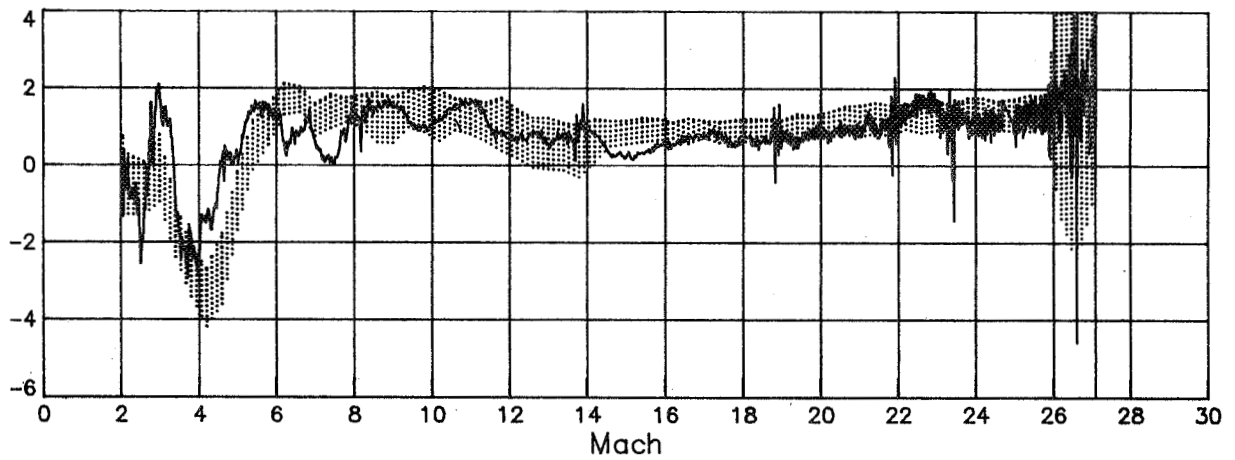
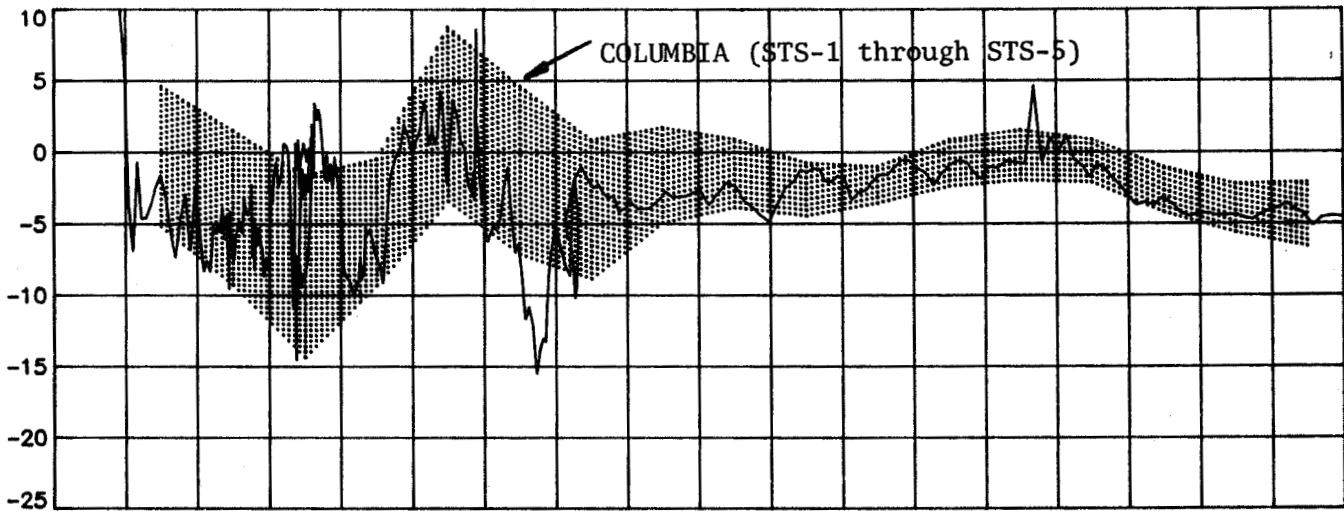
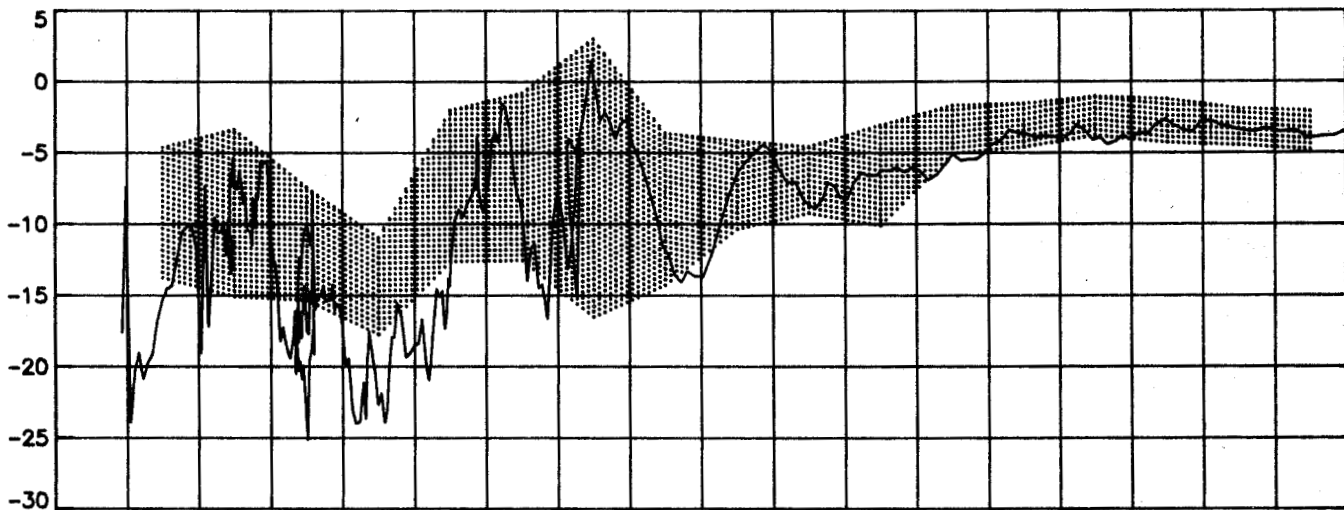


Figure III-23a.STS-11 flight/data base differences vs. Mach

$\Delta C_L$ , percent



$\Delta C_D$ , percent



$\Delta(L/D)$ , percent

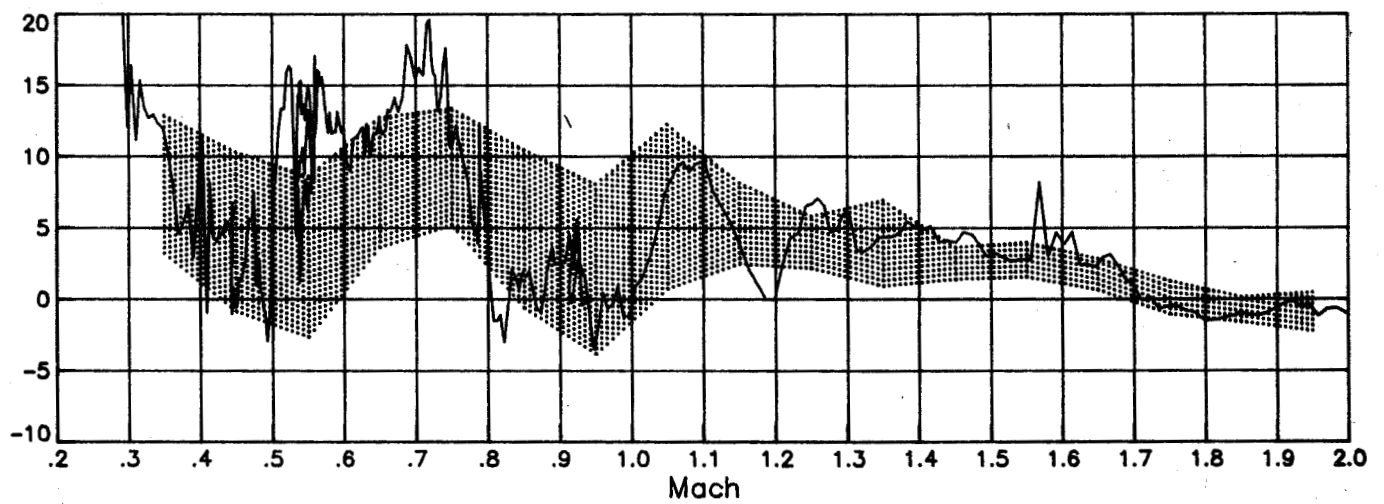
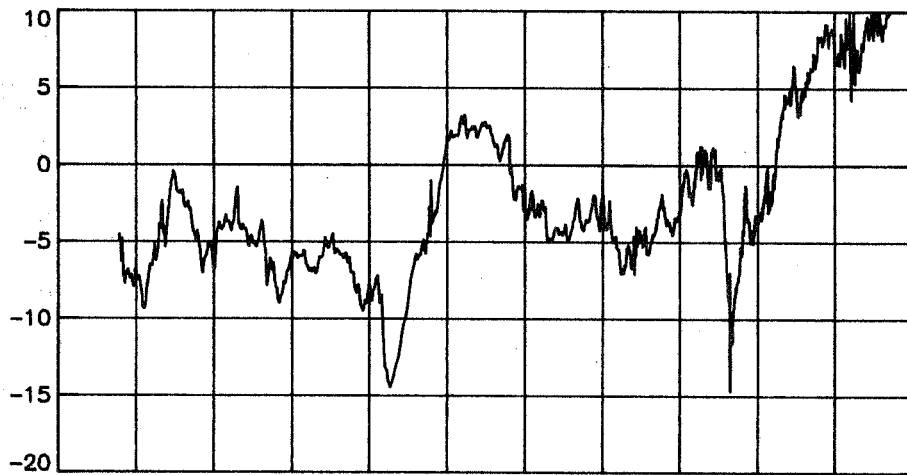
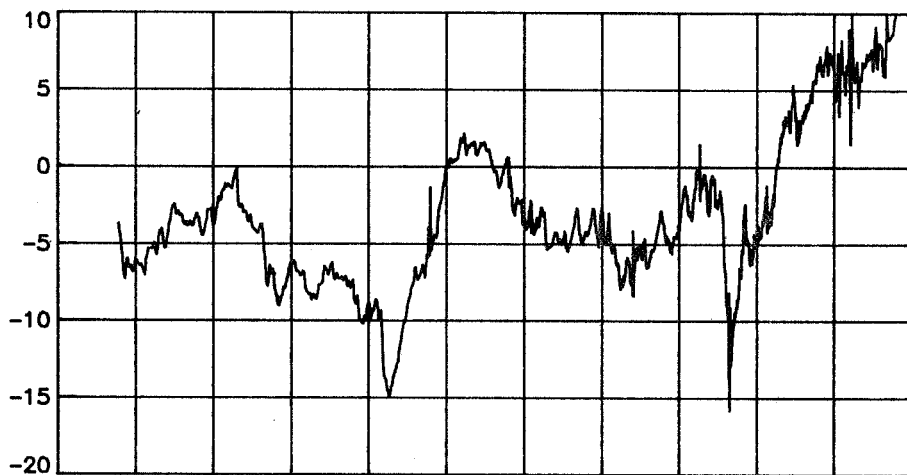


Figure III-23b. STS-11 flight/data base differences vs. Mach

$\Delta C_L$ , percent



$\Delta C_D$ , percent



$\Delta(L/D)$ , percent

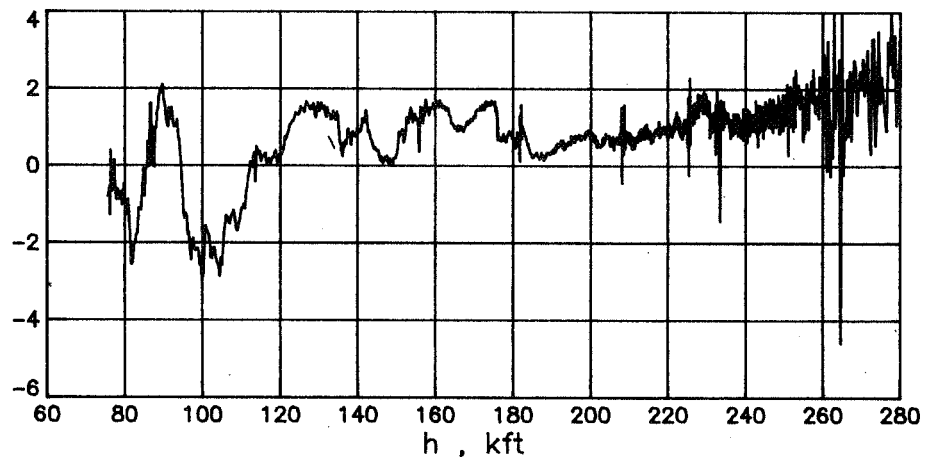
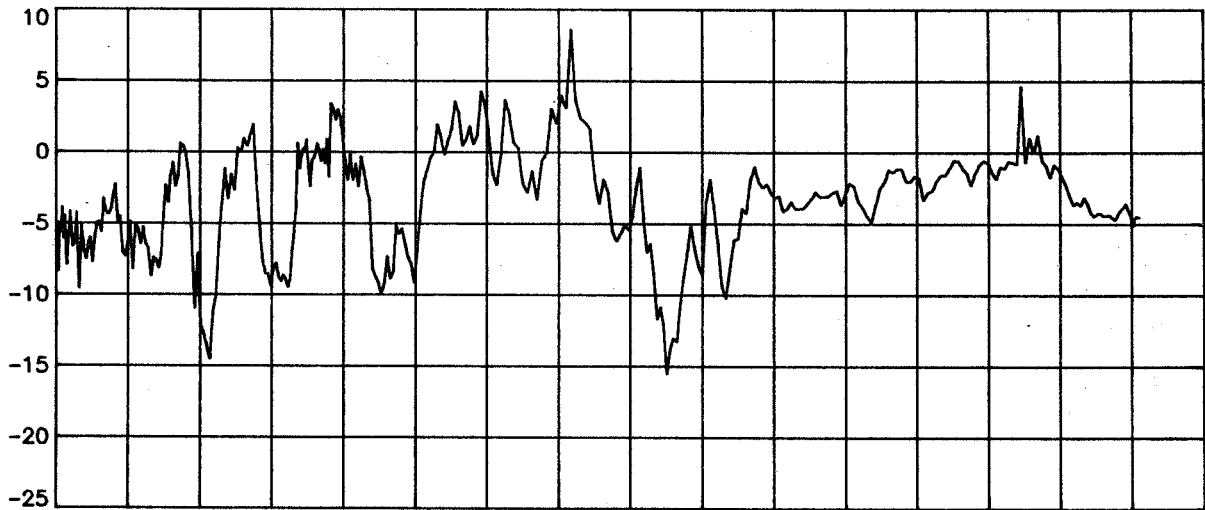
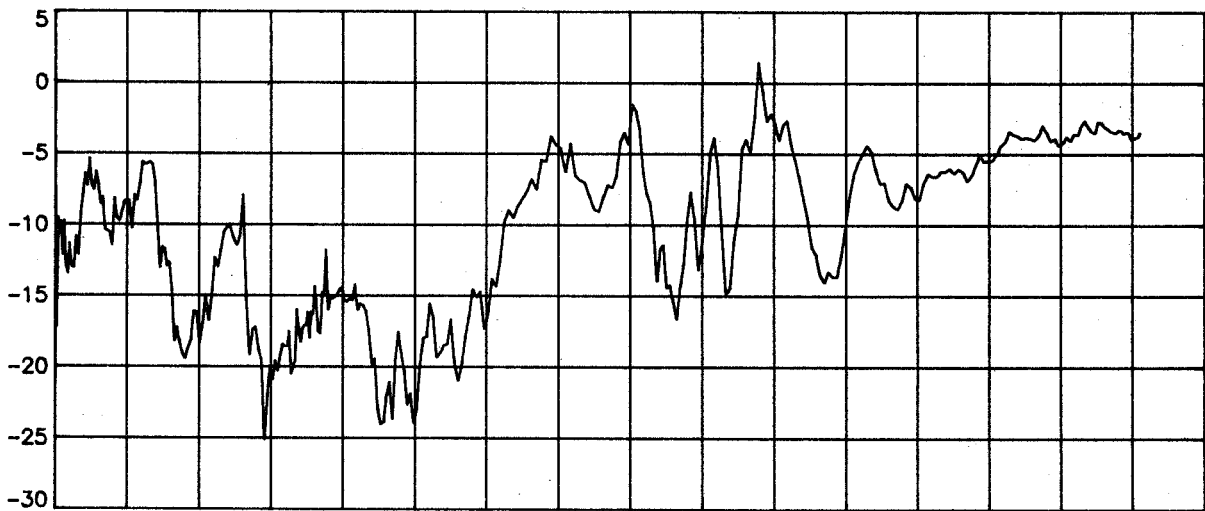


Figure III-24a. STS-11 flight/data base differences vs.  $h$

$\Delta C_L$ , percent



$\Delta C_D$ , percent



$\Delta(L/D)$ , percent

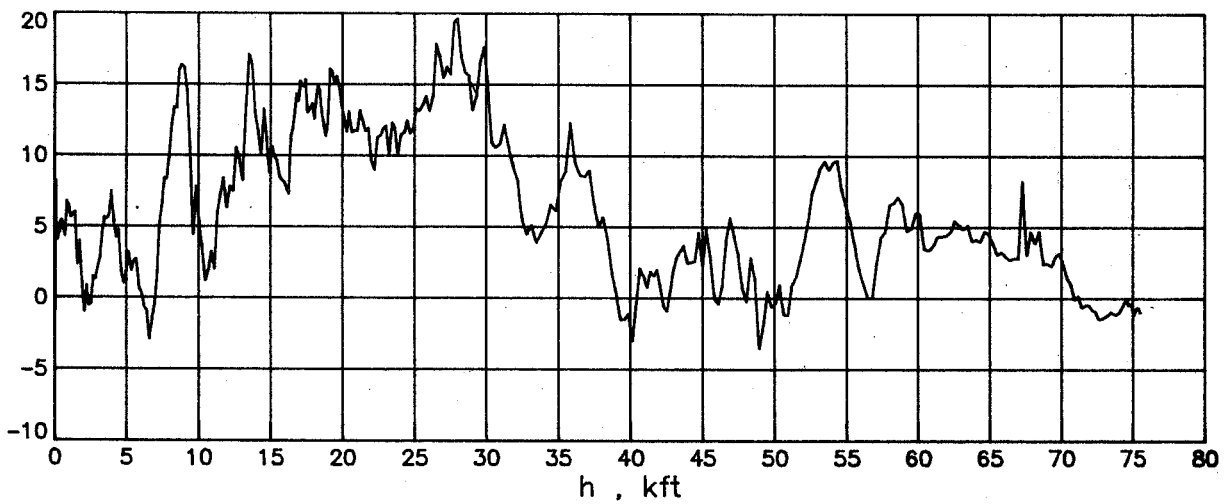


Figure III-24b. STS-11 flight/data base differences vs. h

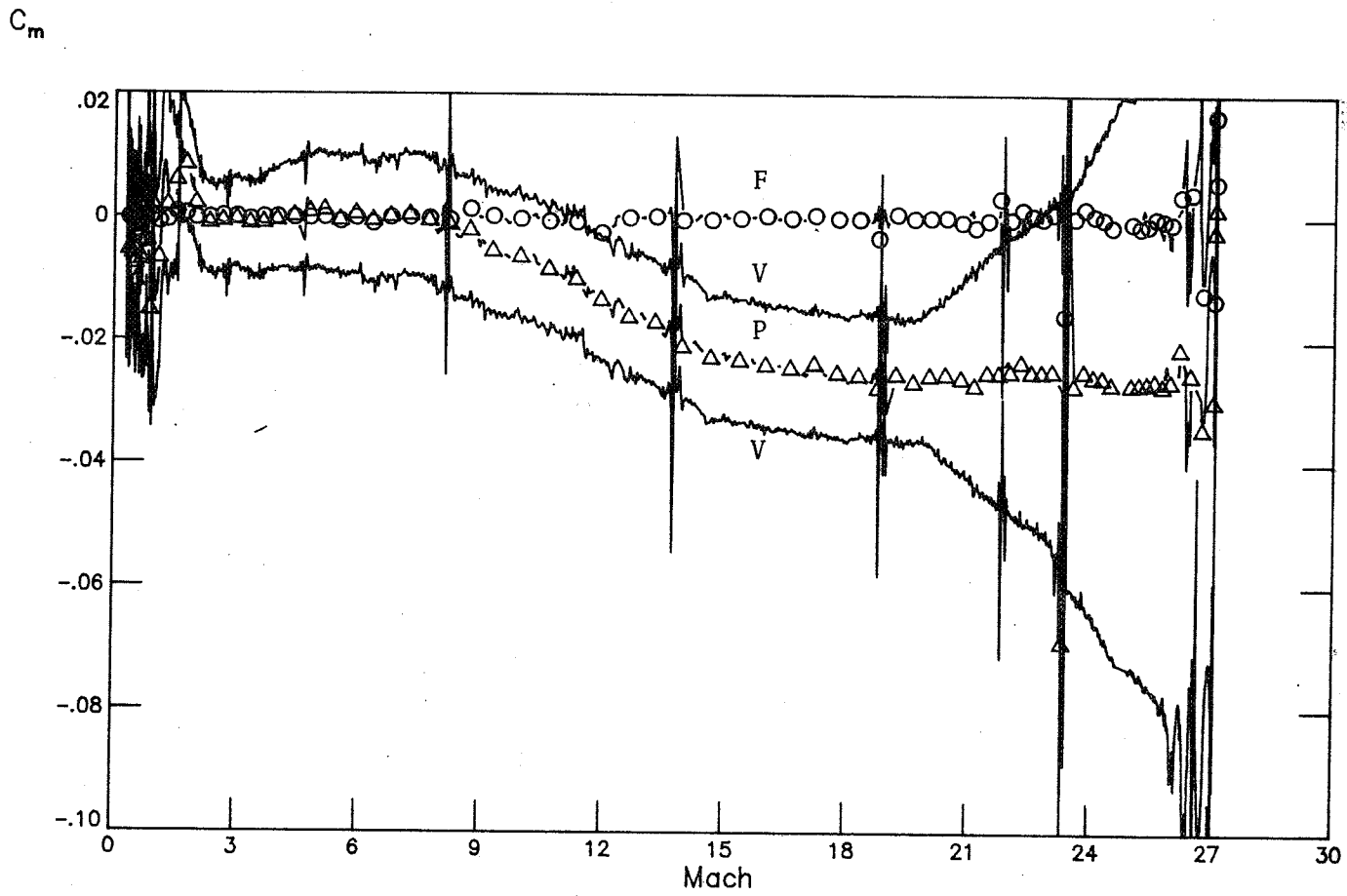


Figure III-25. STS-11  $C_m$  comparisons vs. Mach



$\Delta C_m$ , percent

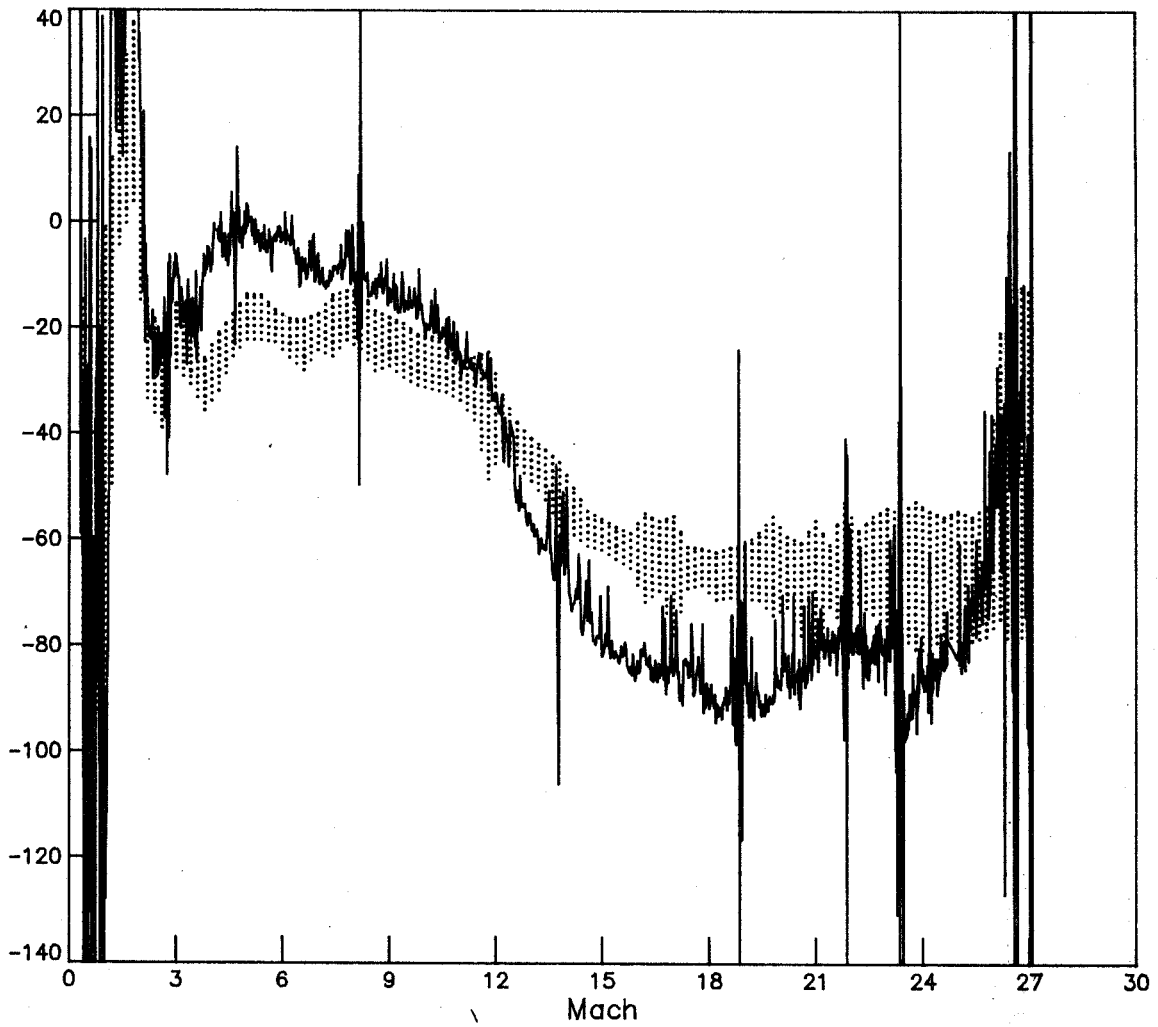


Figure III-26.  $\Delta C_m$  comparisons vs. Mach

#### IV. MMLE Input Files

The high frequency (25 Hz) MMLE input file, the so-called GTFILE described in AMA Report No. 81-20, generated based on IMU2 measurements was output as physical reel NF0364. This file was developed by integration using the BET initial conditions at h~400 kft (t = 936 seconds from epoch), outputting the file at 25 Hz slaved to the data records on the input OI-2 reel (NH0950) and terminated at WOW. FLAIR11 was utilized to define ambient atmosphere and winds versus altitude. Major maneuver periods during the STS-11 entry flight are as presented in Table IV.

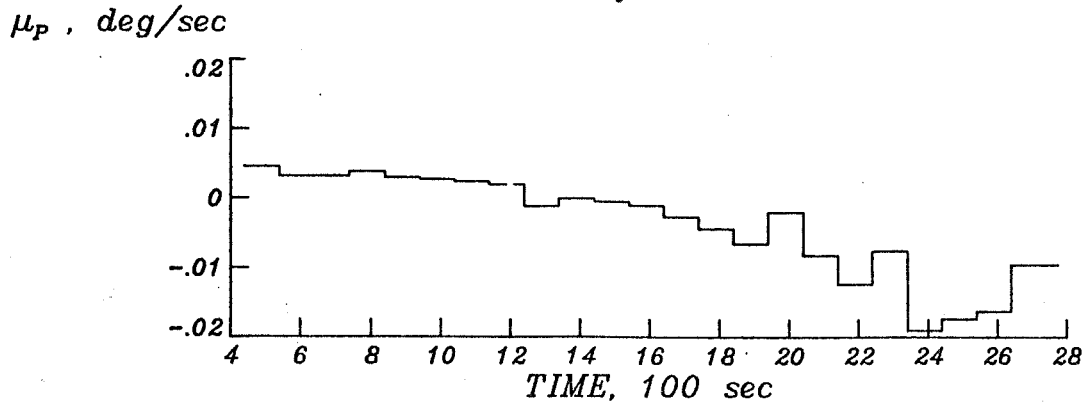
*The loss of the ACIP yaw rate data precluded generation of multi-file (short integration intervals around major maneuvers) GTFILES for STS-11. The method utilized for this flight was to incorporate RGA yaw rate data onto the ACIP file and utilize this modified ACIP file, rectified versus the IMU2 data to remove the major biases in the various channels, as dynamic replacements on the IMU GTFILE. Thus, these replaced words (P, Q, R<sub>RGA</sub>, A<sub>X</sub>, A<sub>Y</sub>, A<sub>Z</sub>, P̄, Q̄, and R̄) can be utilized as input signals for MMLE investigators even though they were not utilized directly in the integration process. The ACIP GTFILE, generated as discussed, was output on physical reel NF0422. Figures IV-1 through IV-3 show the biases (to be) removed from the ACIP (RGA) measurements in the various channels to rectify these data. Shown are sub-interval biases (computed over 100 second sub-intervals) between the ACIP (RGA) and IMU2 derived body axes data. Average mean differences, and an estimate of the 1σ standard deviation in the average mean difference, are annotated on each sub-frame for the various channels as information only to show the extent of the signal differences.*

<u>START</u>	<u>STOP</u>	<u>AXIS</u>	<u>TYPE</u>	<u>MAJOR CONTROL EFFECTORS</u>
42:11:49:50 (1210)	42:11:49:57 (1217)	LONG	PTI	ELEVATOR
11:49:57 (1217)	11:50:11 (1231)	LATR	PTI	AILERON, JET
11:50:24 (1244)	11:50:32 (1252)	LATR	BRB	
11:50:44 (1264)	11:50:50 (1270)	LATR	BRE	
11:54:13 (1473)	11:54:38 (1498)	LONG	PTI	ELEVATOR
11:54:25 (1485)	11:54:38 (1498)	LATR	PTI+REC	AILERON, JET
11:56:07 (1587)	11:56:15 (1595)	LATR	PTI	JET, AILERON
11:56:16 (1596)	11:56:22 (1602)	LONG	PTI	ELEVATOR
11:56:23 (1603)	11:56:28 (1608)	LATR	OTH	JETS, AILERON
11:58:52 (1752)	11:59:00 (1760)	LATR	PTI	JETS, AILERON
11:59:00 (1760)	11:59:06 (1766)	LONG	PTI	ELEVATOR
11:59:06 (1766)	11:59:10 (1770)	LATR	OTH	JETS (VERY SMALL)
12:01:23 (1903)	12:01:28 (1908)	LATR	OTH	JETS
12:01:39 (1919)	12:01:48 (1928)	LATR	PTI	JETS, AILERON
12:01:49 (1929)	12:01:53 (1933)	LONG	PTI	ELEVATOR
12:01:55 (1935)	12:02:00 (1940)	LATR	OTH	JETS
12:02:32 (1972)	12:02:38 (1978)	LATR	BRB	
12:02:53 (1993)	12:02:58 (1998)	LATR	BRE	
12:03:50 (2050)	12:03:53 (2053)	LATR	OTH	JETS
12:04:02 (2062)	12:04:34 (2094)		SB MAN	SPEED BRAKE
12:04:34 (2094)	12:04:45 (2105)	LATR	PTI	JETS, AILERON
12:04:44 (2104)	12:04:49 (2109)	LONG	PTI	ELEVATOR
12:04:52 (2112)	12:05:00 (2120)	LATR	OTH	JETS
12:05:35 (2155)	12:05:45 (2165)	LATR	OTH	JETS
12:05:56 (2176)	12:06:01 (2181)	LATR	BRB	
12:06:13 (2193)	12:06:19 (2199)	LATR	BRE	
12:07:24 (2264)	12:07:34 (2274)	LATR	PTI+REC	RUDDER, AILERON, JETS
12:08:29 (2329)	12:08:35 (2335)	LATR	BRB	
12:08:43 (2343)	12:08:48 (2348)	LATR	BRE	
12:09:10 (2370)	12:09:24 (2384)	LATR	PTI+REC	RUDDER, AILERON, JETS
12:09:29 (2389)	12:09:34 (2394)	LATR	OTH	
12:09:50 (2410)	12:10:02 (2422)	LATR	PTI	RUDDER, JETS, AILERON
12:10:26 (2446)	12:10:38 (2458)	LATR	PTI	RUDDER, JETS, AILERON
12:10:37 (2457)	12:10:42 (2462)	LONG	PTI	ELEVATOR

NOTES: REC Recovery following PTI  
 OTH Incidental motion  
 BRB Bank Reversal Beginning  
 BRE Bank Reversal Ending

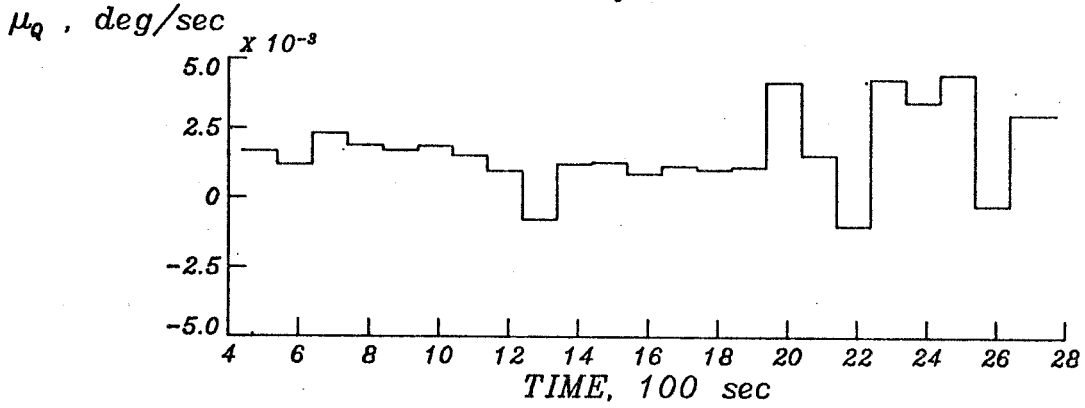
Table IV. Major maneuver periods for STS-11 (41-B).

$\sigma_{\mu} = .00714$   
 $\mu_{avg} = -.00365$



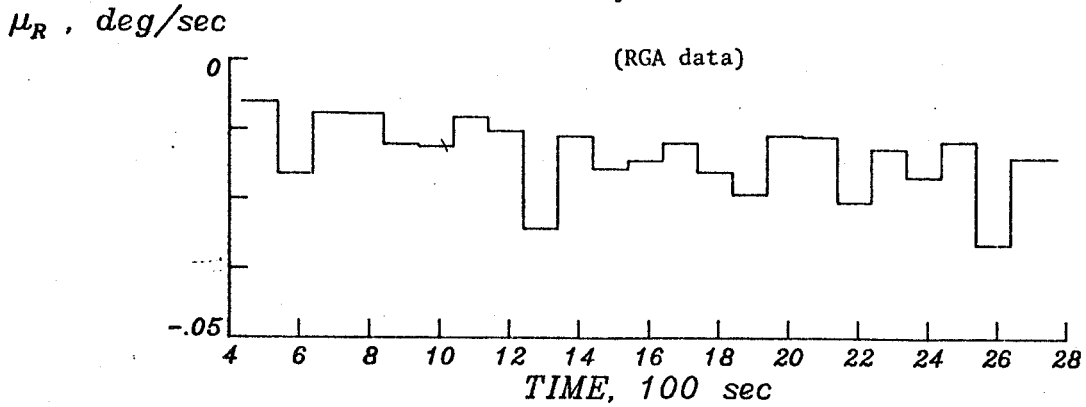
(a) Roll rate statistics versus time

$\sigma_{\mu} = .00144$   
 $\mu_{avg} = .00169$



(b) Pitch rate statistics versus time

$\sigma_{\mu} = .00638$   
 $\mu_{avg} = -.01726$



(c) Yaw rate statistics versus time

Figure IV-1. STS-11 angular rate differences, IMU-ACIP except as noted.

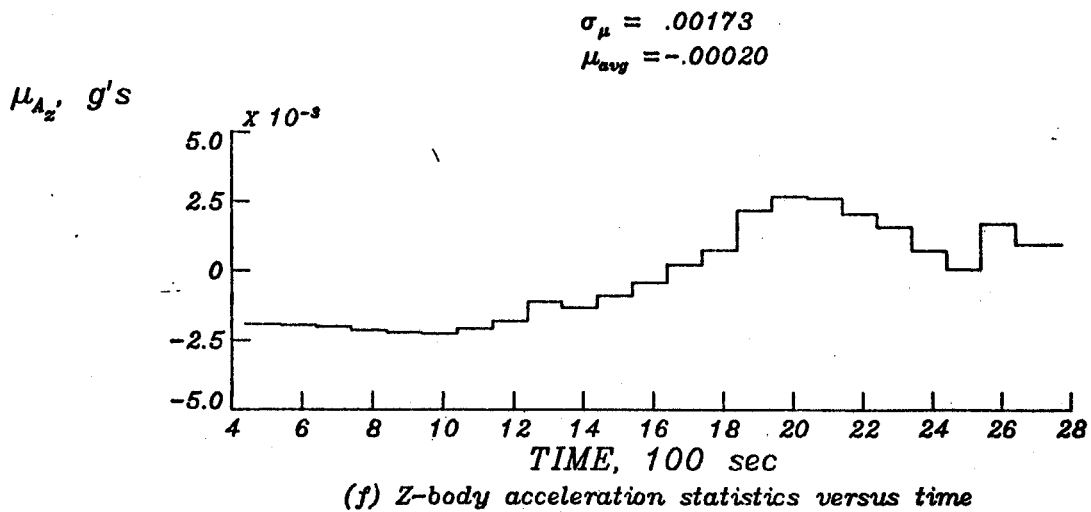
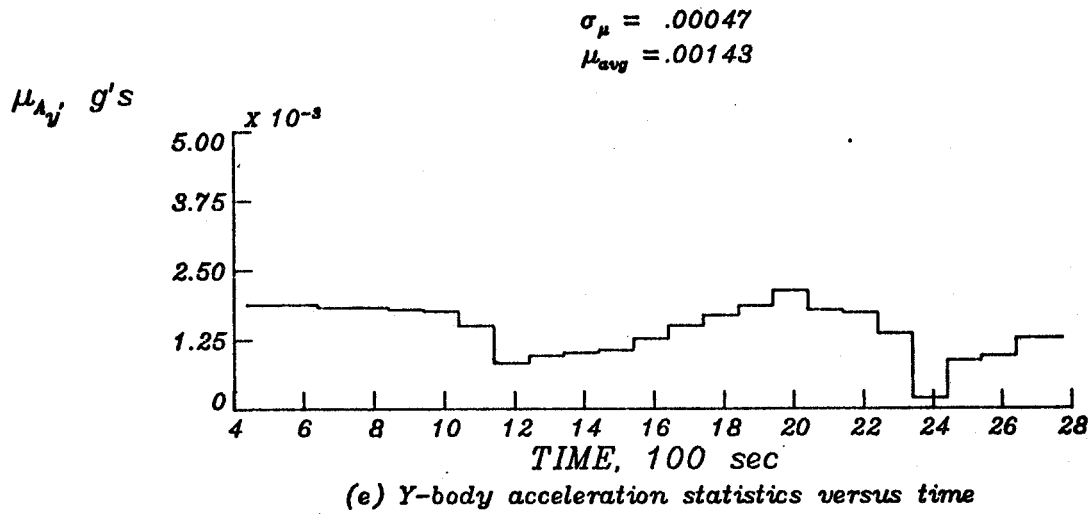
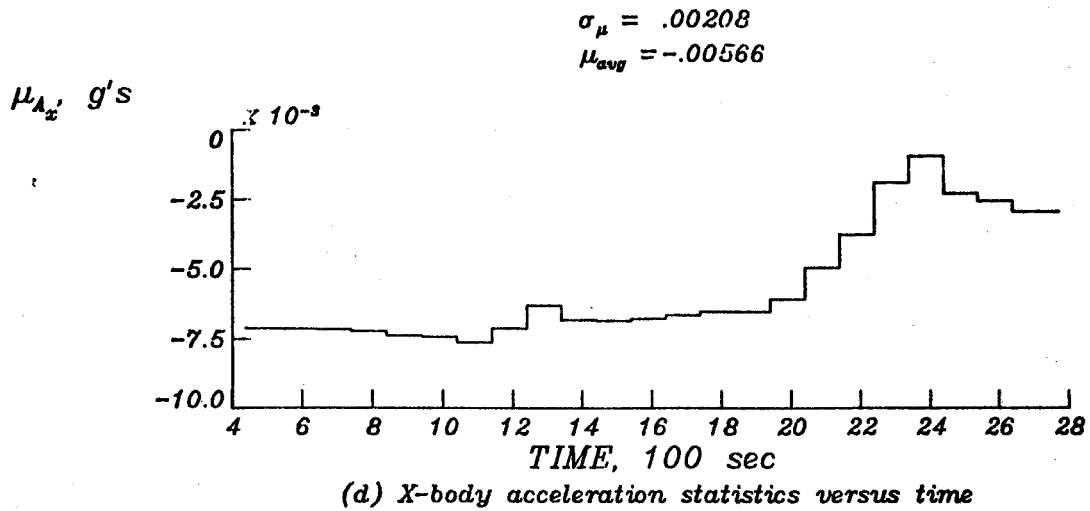


Figure IV-2. STS-11 acceleration differences, IMU-ACIP.

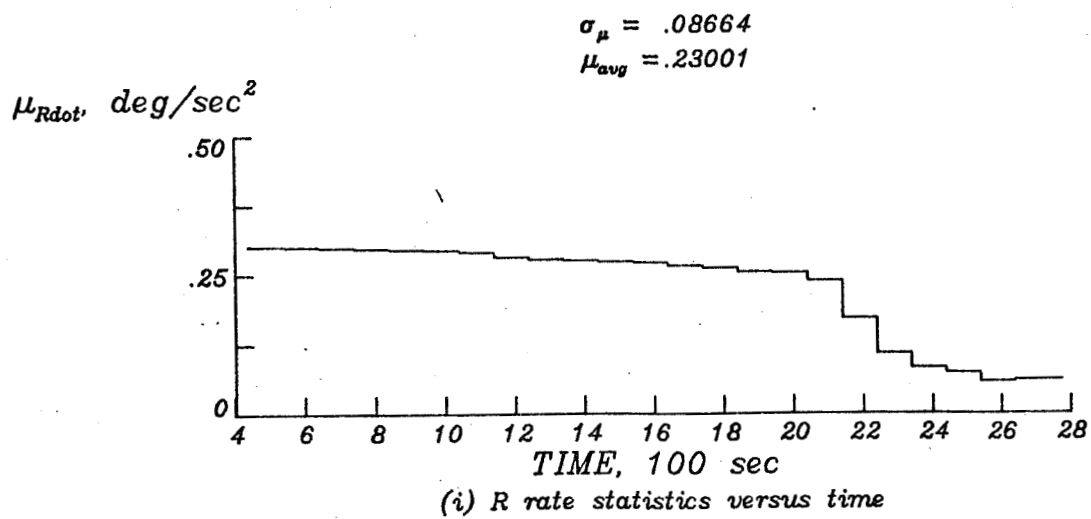
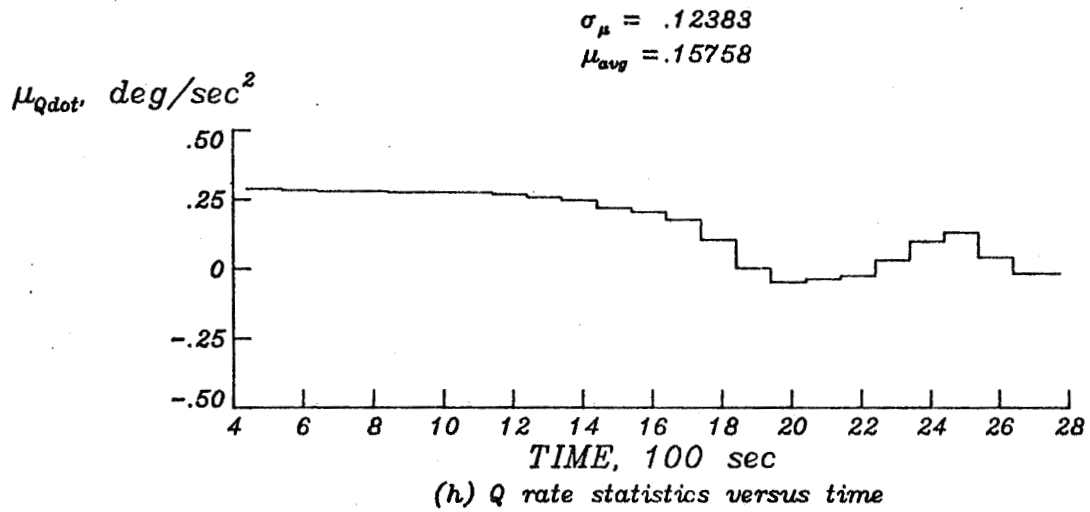
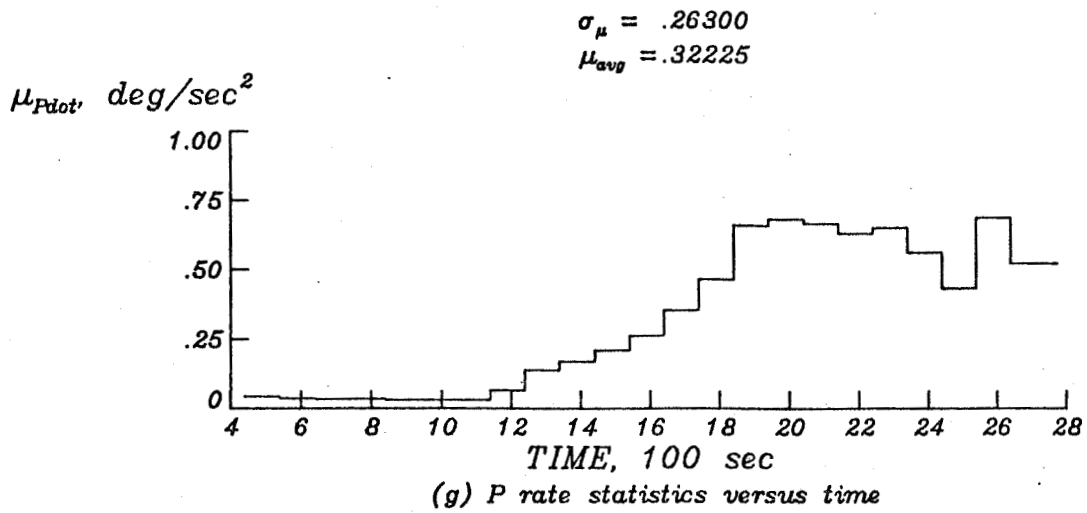


Figure IV-3. STS-11 angular acceleration differences, IMU-ACIP.

APPENDIX A  
Spacecraft and Physical Constants

++++IMU NBR 1 ATTITUDE INFORMATION++++

...INERTIAL (EE50) TO ROTATING (ETOD)		
.67825511E+00	-.73482314E+00	-.22268361E-02
.73481917E+00	.67825877E+00	-.24152635E-02
.32851626E-02	.18429128E-05	.99999460E+00
...ROTATING (ETOD) TO N-E-D		
-.11669025E-01	.80056950E-02	.99989987E+00
-.56572435E+00	-.82459442E+00	0.
.82451185E+00	-.56566771E+00	.14151229E-01
...NAV BASE TO S/C BODY		
.98291057E+00	.36562364E-03	-.18408337E+00
-.37935496E-03	.99999993E+00	-.39375571E-04
.18408334E+00	.10853560E-03	.98291063E+00
...NAV BASE TO OUTER ROLL		
.99999950E+00	-.91449388E-03	.40092134E-03
.91449381E-03	.99999958E+00	.36664027E-06
-.40092151E-03	0.	.99999992E+00
...PLATFORM TO OUTER ROLL		
-.33052267E-01	.56784576E+00	-.82247069E+00
-.70468872E+00	-.59680067E+00	-.38372081E+00
-.70874582E+00	.56690304E+00	.41988082E+00
...INERTIAL (EE50) TO PLATFORM		
.21359438E+00	.72888756E+00	.65046114E+00
.39184090E-01	-.67168337E+00	.73980147E+00
.97613609E+00	-.13252962E+00	-.17202884E+00
...S/C BODY TO N-E-D		
.54805004E+00	-.83603410E+00	-.26212843E-01
.83643875E+00	.54789950E+00	.13238073E-01
.32942207E-02	-.29180778E-01	.99956828E+00

Table A-1

STS-11 IMU attitude matrices @ Epoch



++++IMU NBR 2 ATTITUDE INFORMATION++++

...INERTIAL (EE50) TO ROTATING (ET0D)		
.67825511E+00	-.73482314E+00	-.22268361E-02
.73481917E+00	.67825877E+00	-.24152635E-02
.32851626E-02	.18429128E-05	.99999460E+00
...ROTATING (ET0D) TO N-E-D		
-.11669025E-01	.80056950E-02	.99989987E+00
-.56572435E+00	-.82459442E+00	0.
.82451185E+00	-.56566771E+00	.14151229E-01
...NAV BASE TO S/C BODY		
.98291057E+00	.36562364E-03	-.18408337E+00
-.37935496E-03	.99999993E+00	-.39375571E-04
.18408334E+00	.10853560E-03	.98291063E+00
...NAV BASE TO OUTER ROLL		
.99999530E+00	-.74577054E-03	-.62278928E-03
.74578641E-03	.99999972E+00	.25249802E-04
.62277028E-03	-.25714258E-04	.99999981E+00
...PLATFORM TO OUTER ROLL		
-.86854365E-01	.62107421E+00	.77892404E+00
-.85932150E+00	-.44227344E+00	.25682703E+00
.50400634E+00	-.64703972E+00	.57211626E+00
...INERTIAL (EE50) TO PLATFORM		
.68033350E+00	-.40259582E+00	.61242330E+00
-.42794025E+00	.46016020E+00	.77789384E+00
-.59498972E+00	-.79130793E+00	.14077538E+00
...S/C BODY TO N-E-D		
.54774363E+00	-.83620358E+00	-.27135167E-01
.83663381E+00	.54758227E+00	.13796265E-01
.33205425E-02	-.30259458E-01	.99953595E+00

Table A-1

(continued)

++++IMU NBR 3 ATTITUDE INFORMATION++++

...INERTIAL (EE50) TO ROTATING (ETOD)		
.67825511E+00	-.73482314E+00	-.22268361E-02
.73481917E+00	.67825877E+00	-.24152635E-02
.32851626E-02	.18429128E-05	.99999460E+00
...ROTATING (ETOD) TO N-E-D		
-.11669025E-01	.80056950E-02	.99989987E+00
-.56572435E+00	-.82459442E+00	0.
.82451185E+00	-.56566771E+00	.14151229E-01
...NAV BASE TO S/C BODY		
.98291057E+00	.36562364E-03	-.18408337E+00
-.37935496E-03	.99999993E+00	-.39375571E-04
.18408334E+00	.10853560E-03	.98291063E+00
...NAV BASE TO OUTER ROLL		
.99999429E+00	.12891322E-02	.31251399E-02
-.12891429E-02	.99999917E+00	.14160325E-05
-.31251355E-02	-.54447762E-05	.99999512E+00
...PLATFORM TO OUTER ROLL		
.92037167E+00	-.38887271E+00	.41158176E-01
-.39086535E+00	-.91165190E+00	.12694375E+00
-.11843029E-01	-.13292274E+00	-.99105545E+00
...INERTIAL (EE50) TO PLATFORM		
-.51497519E+00	-.24079520E+00	.82268918E+00
.76744723E+00	.29803157E+00	.56762761E+00
-.38186997E+00	.92368513E+00	.31318740E-01
...S/C BODY TO N-E-D		
.54802447E+00	-.83602096E+00	-.27154798E-01
.83645426E+00	.54786871E+00	.13534067E-01
.35621350E-02	-.30131075E-01	.99953918E+00

Table A-1  
(concluded)

Planet Parameters

Physical Model

Polar Radius: 20,855,591.48 ft  
Equatorial Radius: 20,925,741.47 ft  
Rotational Rate: .7292115147E-4 rad/sec

Gravity Model

Central mass,  $\mu$ : .1407646853E17 ft<sup>3</sup>/sec<sup>2</sup>  
J<sub>2</sub>: .10827E-2  
C<sub>30</sub>: .256E-5  
C<sub>40</sub>: .158E-5  
C<sub>22</sub>: .157E-5  
S<sub>22</sub>: -.897E-6

Runway 15 Location:

Altitude: -199 ft (above ellipsoid)  
Geodetic Latitude: 28.632927 deg  
Longitude: 279.293967 deg  
Azimuth: 149.988300 deg

Location of IMU relative to center-of-gravity in Body coordinates

(Assumed constant for entry reconstruction)

X<sub>B</sub> 56 ft  
Y<sub>B</sub> 0.0 ft  
Z<sub>B</sub> -4 ft

Spacecraft aerodynamic reference parameters

Reference Area 2690 ft<sup>2</sup>  
Span 78.057 ft  
Chord 39.567 ft

Average Attitude Computations @ Epoch (41380 sec)

	<u>IMU1</u>	<u>IMU2</u>	<u>IMU3</u>	<u><math>\mu</math></u>	<u><math>\sigma</math></u>
$\psi$ (deg)	56.7664	56.7873	56.7682	56.7740	0.0116
$\theta$ (deg)	-0.1887	-0.1903	-0.2041	-0.1944	0.0085
$\phi$ (deg)	-1.6722	-1.7340	-1.7267	-1.7110	0.0338

TABLE A-2

Planet and Spacecraft Data Used for  
BT11A12, ST11BET, and AEROBET Generation

Weight and Center-of-Gravity (c.g.) Location

<u>EVENT</u>	<u>TIME</u> (sec from epoch)	<u>WEIGHT</u> (lbs)	<u>X<sub>CG</sub></u> (inches in Orbiter	<u>Y<sub>CG</sub></u> Structural	<u>Z<sub>CG</sub></u> Reference)
EI	936	202966.5	1090.7	1.3	372.6
M3	2362	201528.5	1087.9	1.3	371.6
Landing	2774	201238.5	1089.3	1.3	368.8

Moments and Products of Inertia

<u>EVENT</u>	<u>I<sub>XX</sub></u>	<u>I<sub>YY</sub></u>	<u>I<sub>ZZ</sub></u>	<u>I<sub>XY</sub></u>	<u>I<sub>XZ</sub></u>	<u>I<sub>YZ</sub></u>
EI	910919.3	6891001.8	7192288.9	9817.0	153843.3	2741.7
M3	902322.1	6834344.3	7139057.2	7965.4	136928.1	1918.0
Landing	903097.1	6852249.8	7132479.8	7958.7	129257.7	2074.9

NOTES

EI values assumed at epoch

MACH 3 values held constant until gear deploy (t=2757),  
landed values adopted thereafter

Table A-3. STS-11 mass properties

APPENDIX B

Final residuals for STS-11 trajectory reconstruction

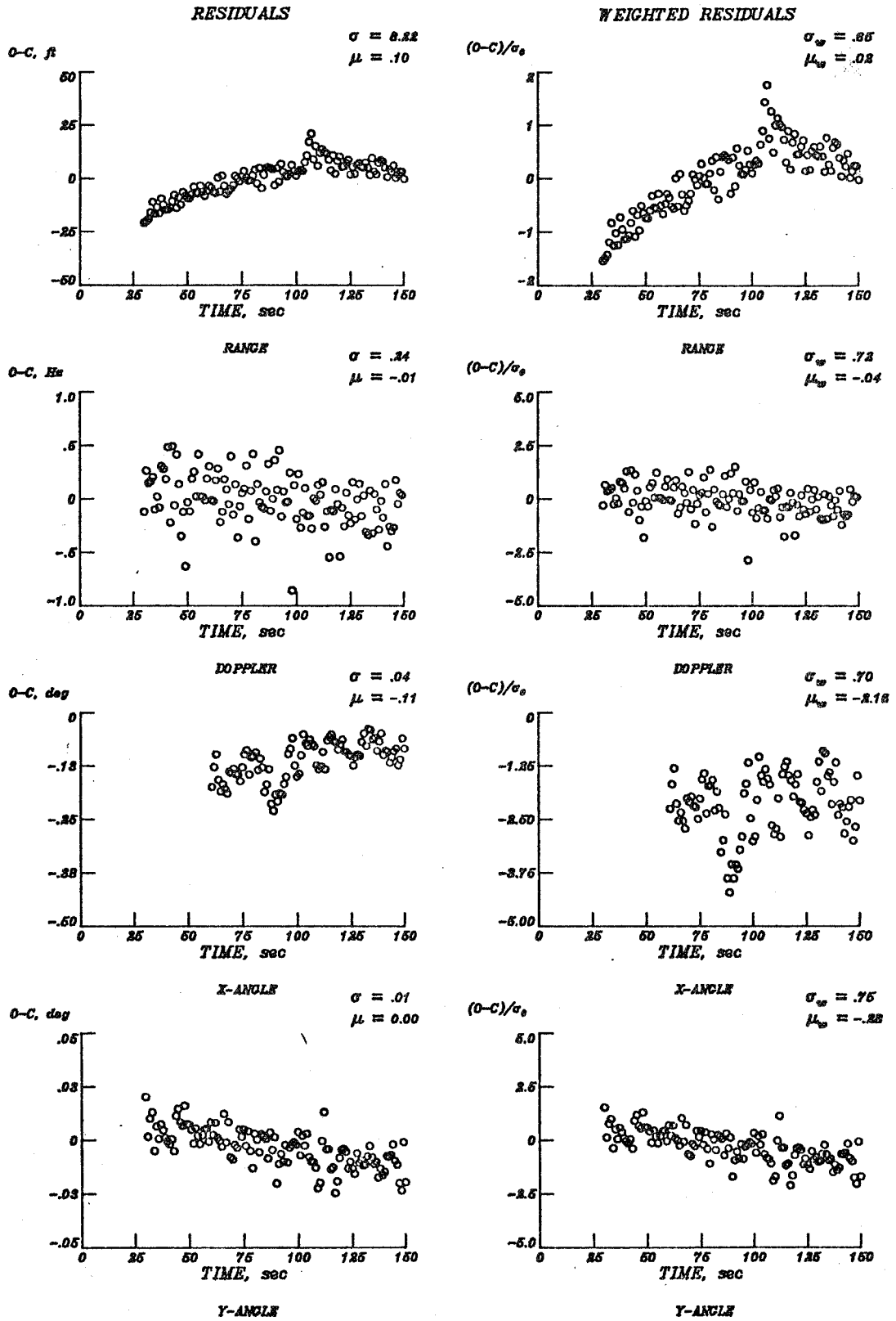


Fig. B-1. Smoothed residuals versus time for GWMS

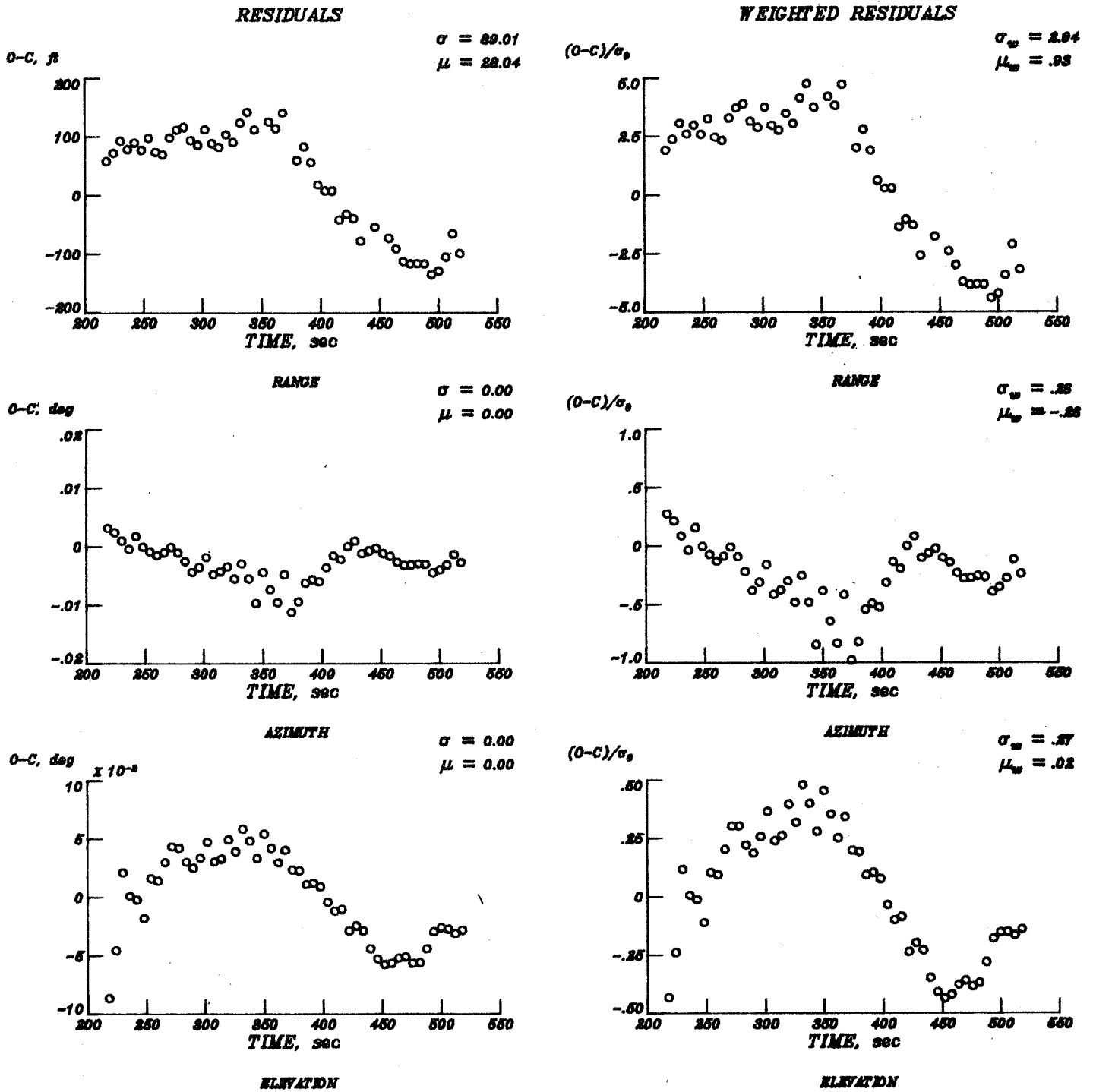


Fig. B-2. Smoothed residuals versus time for KMTC

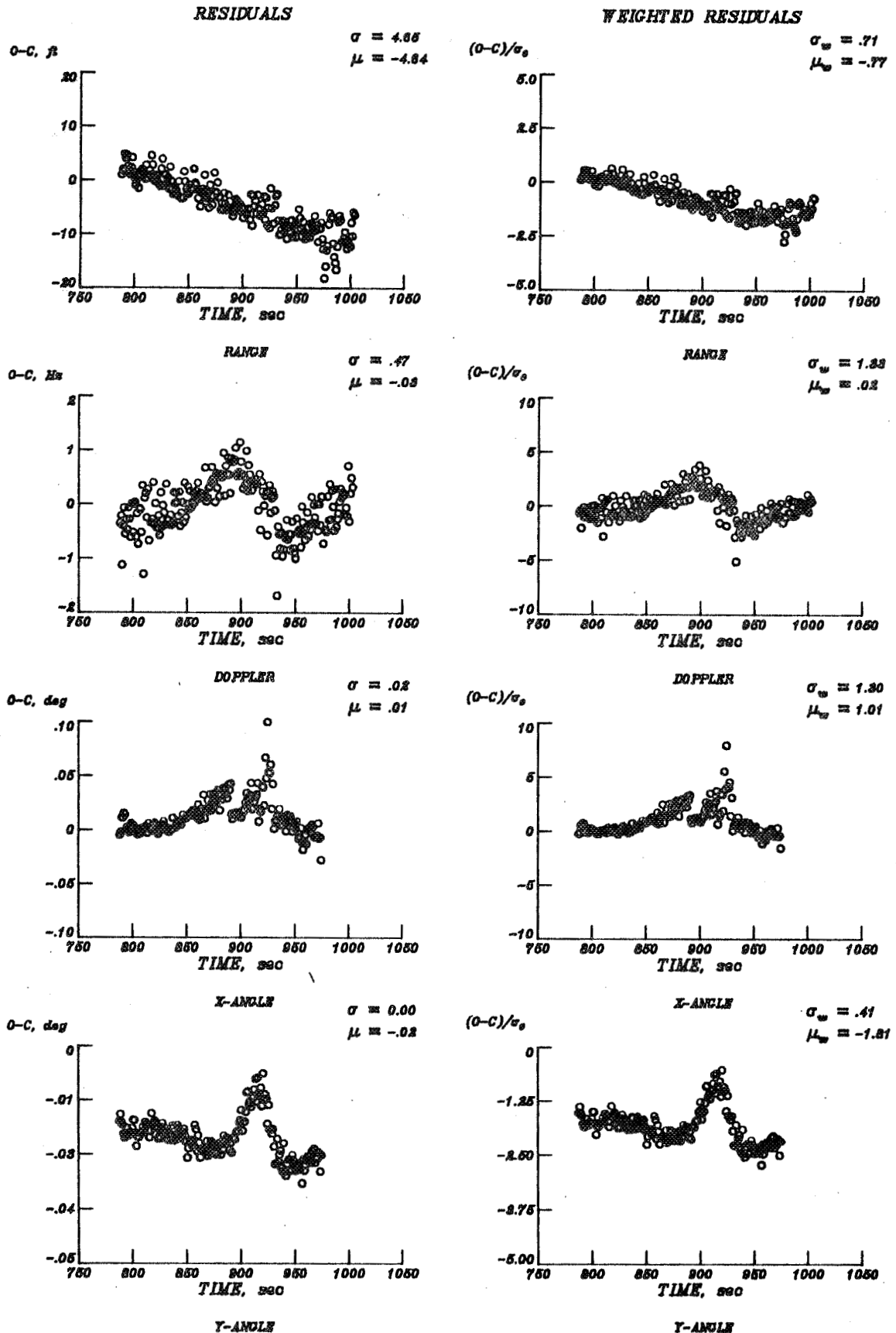
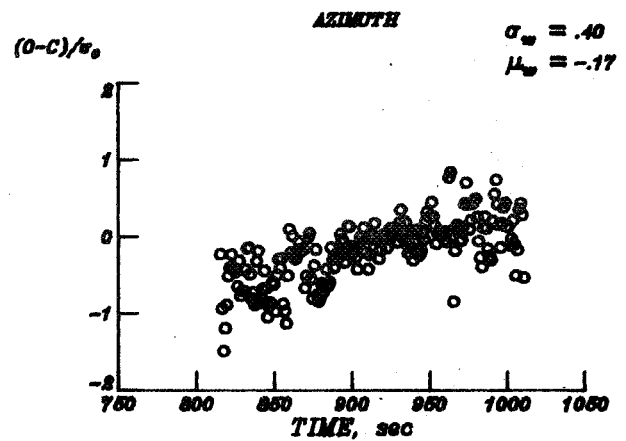
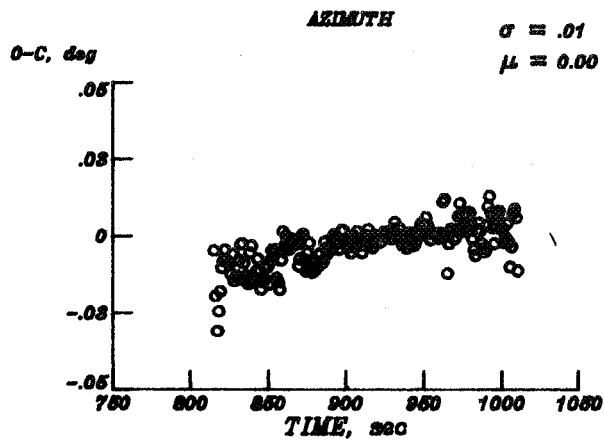
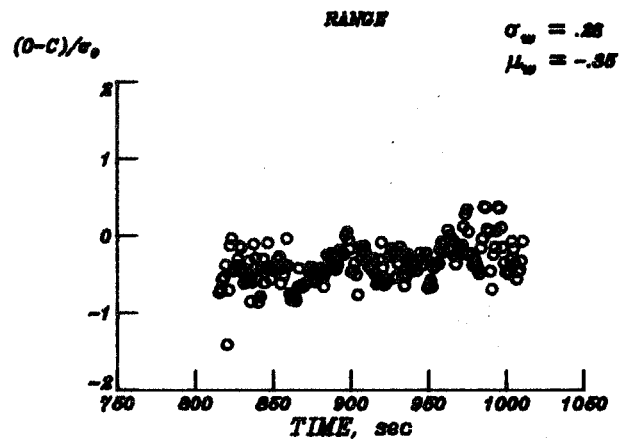
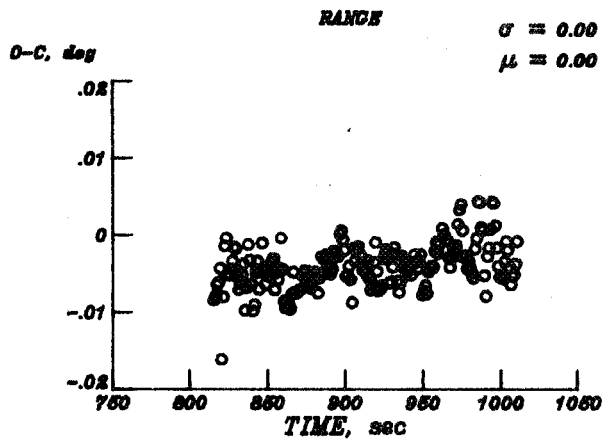
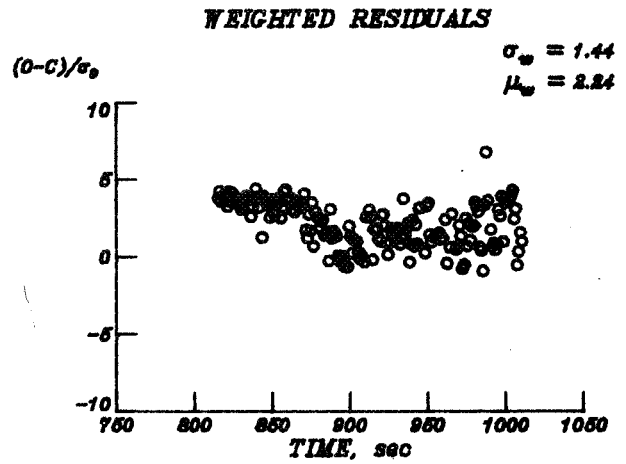
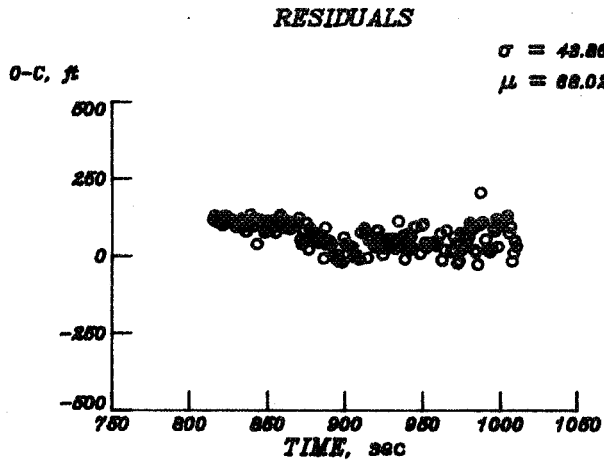


Fig. B-3. Smoothed residuals versus time for HAWS

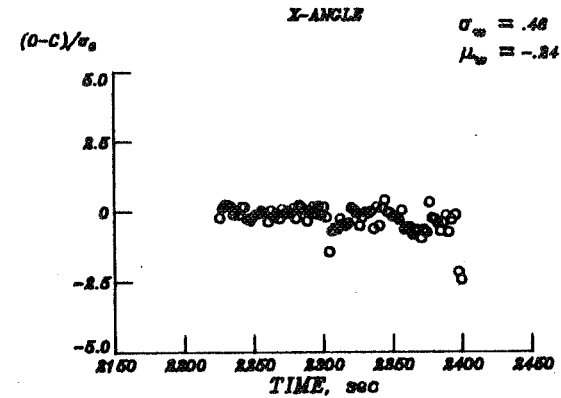
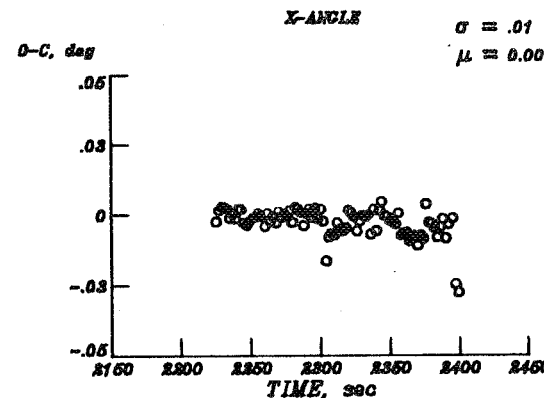
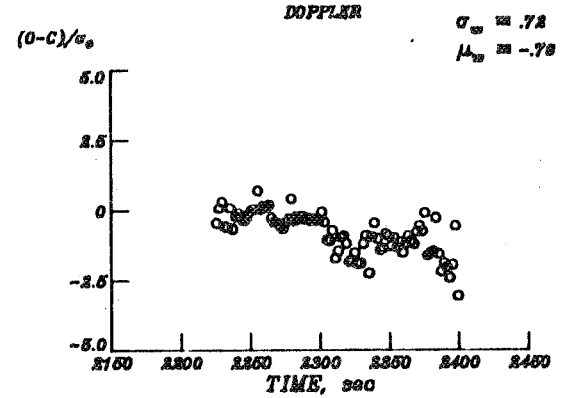
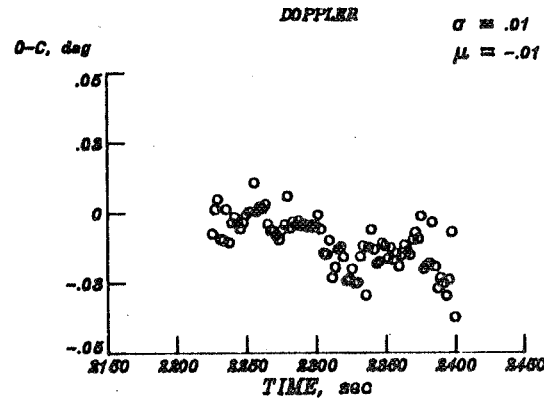
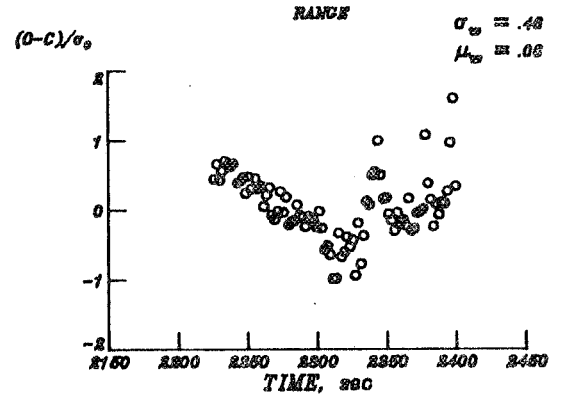
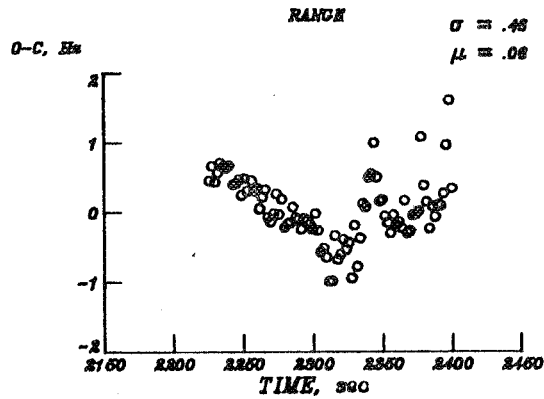
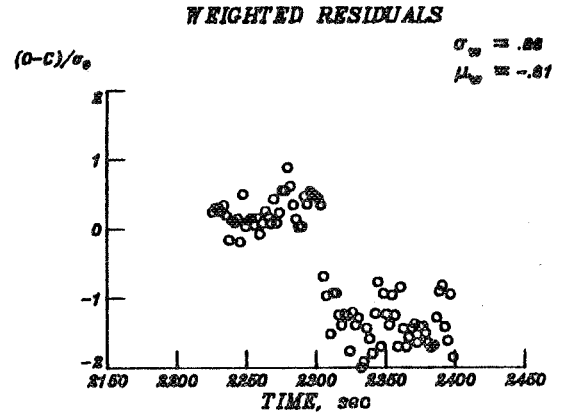
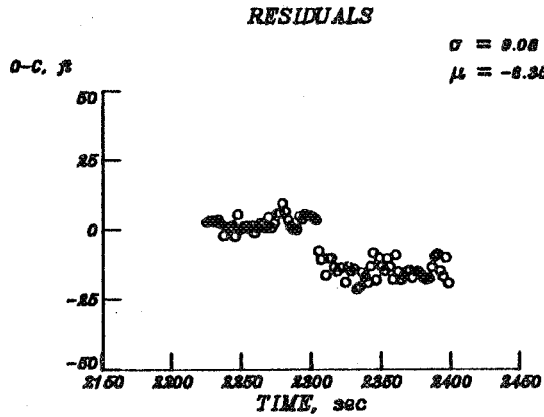




**ELEVATION**

**ELEVATION**

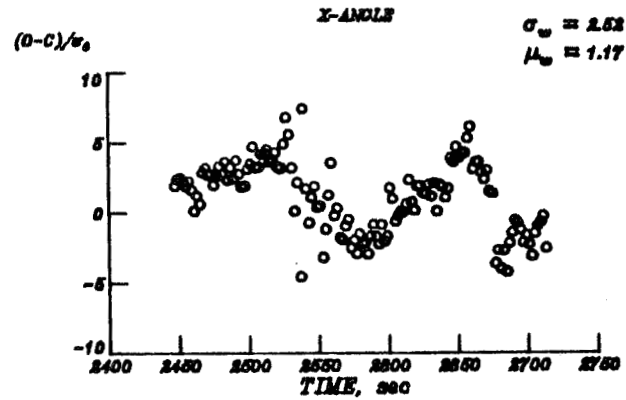
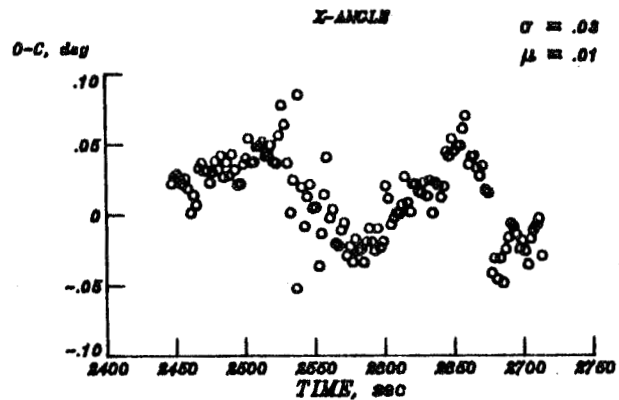
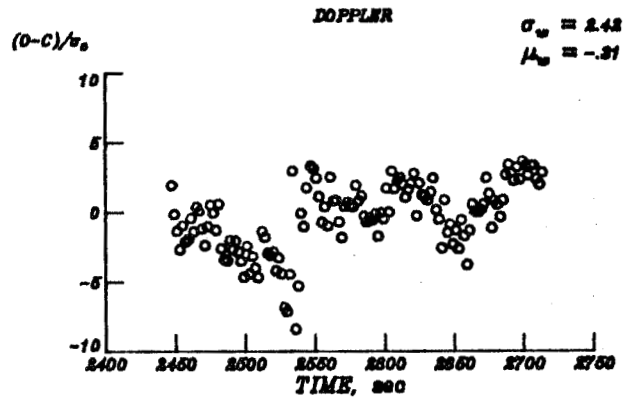
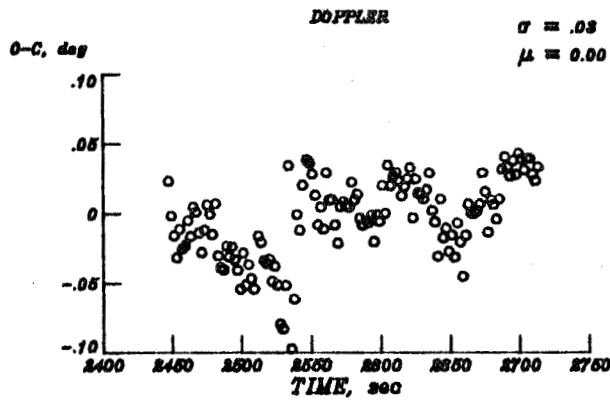
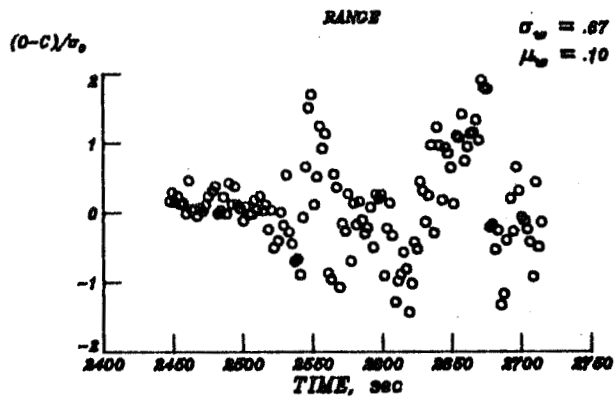
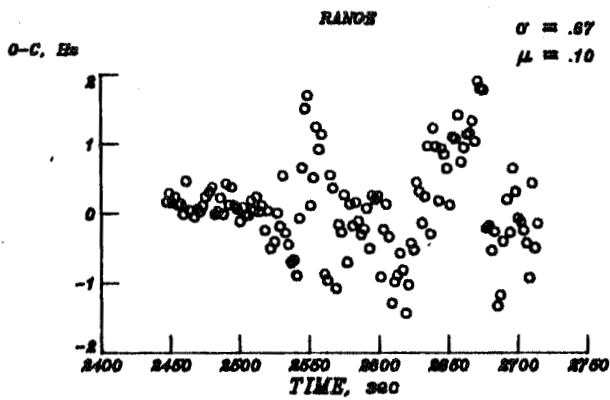
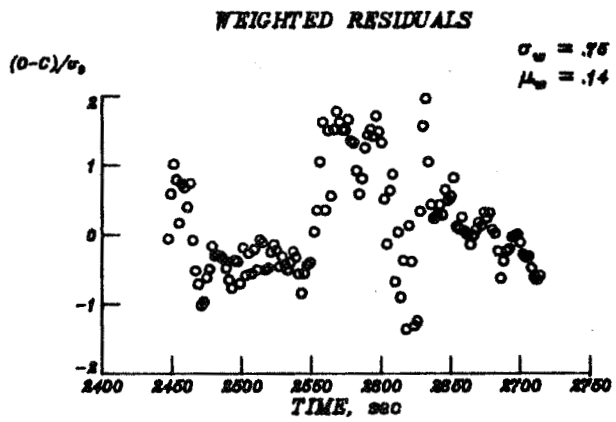
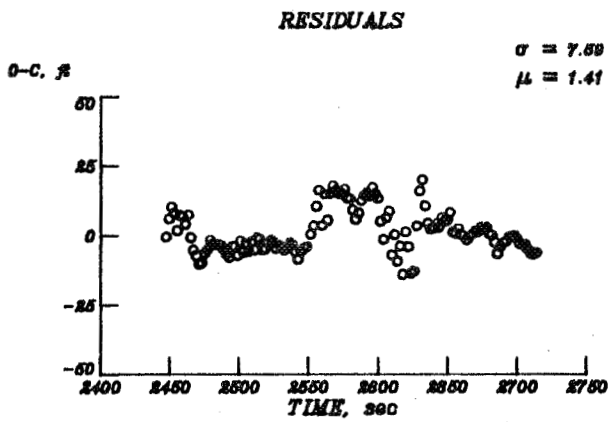
Fig. B-4. Smoothed residuals versus time for KPTC



Y-ANGLE

Y-ANGLE

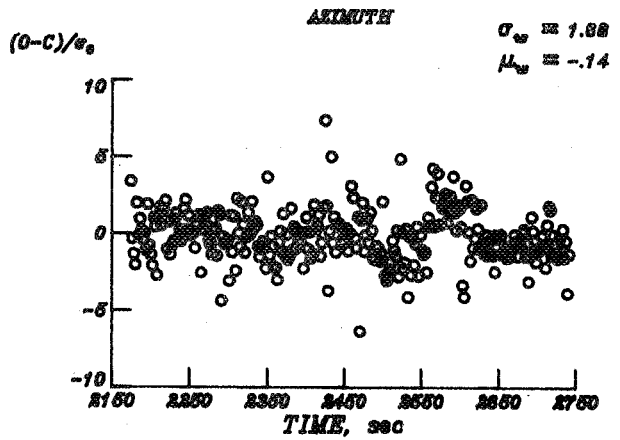
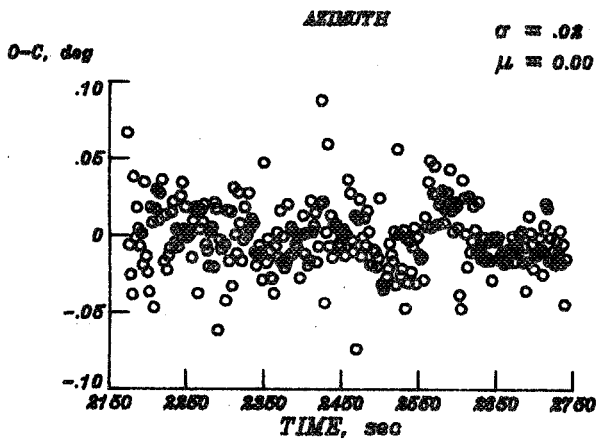
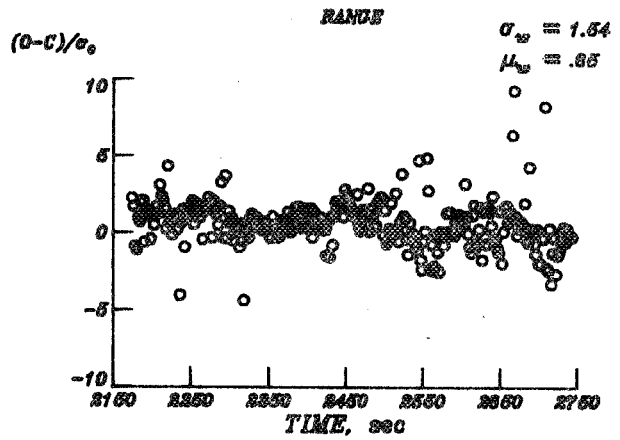
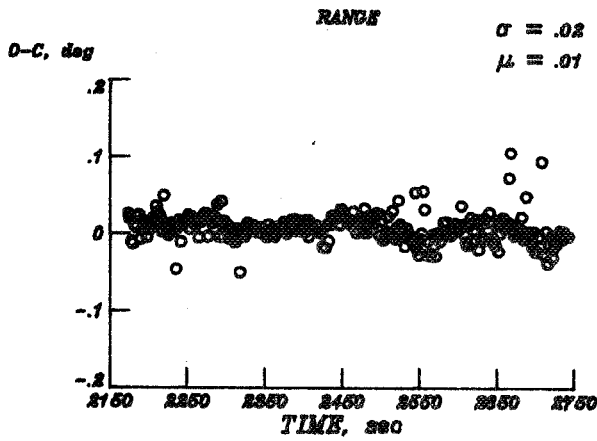
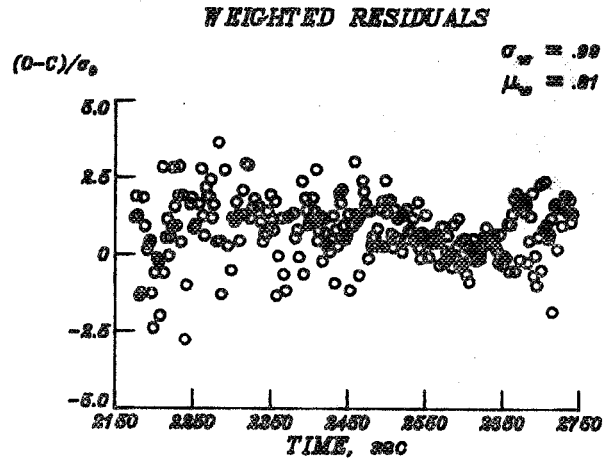
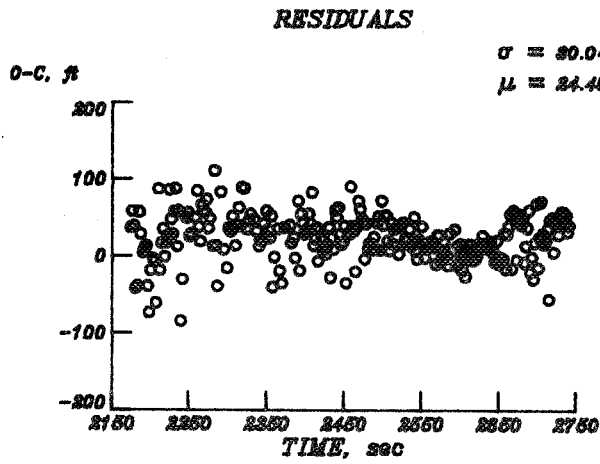
Fig. B-5. Smoothed residuals versus time for MILS



**Y-ANGLE**

**Y-ANGLE**

Fig.B-6. Smoothed residuals versus time for MLXS



ELEVATION

ELEVATION

Fig. B-7. Smoothed residuals versus time for MLMC

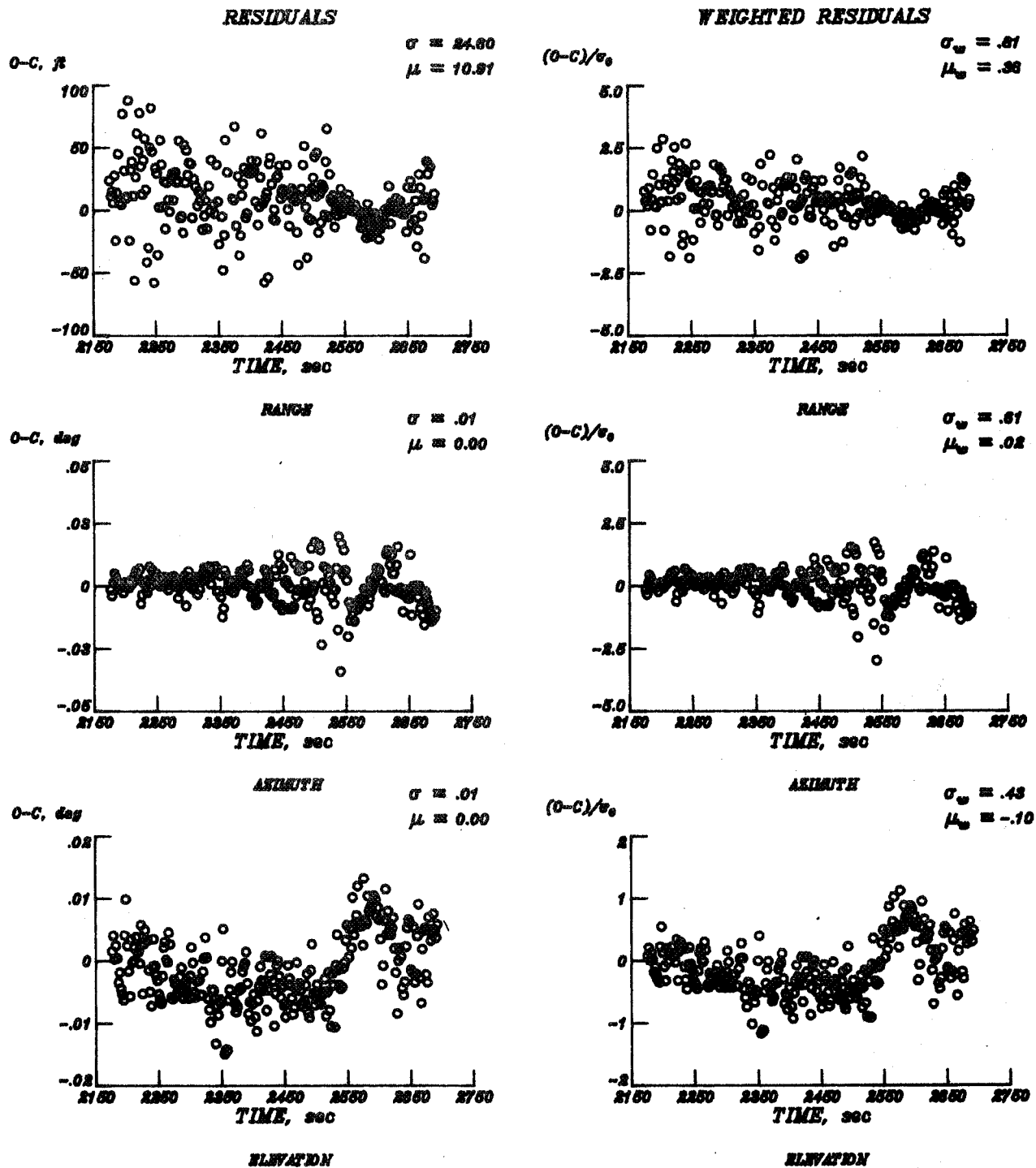


Fig. B-8. Smoothed residuals versus time for MLAC

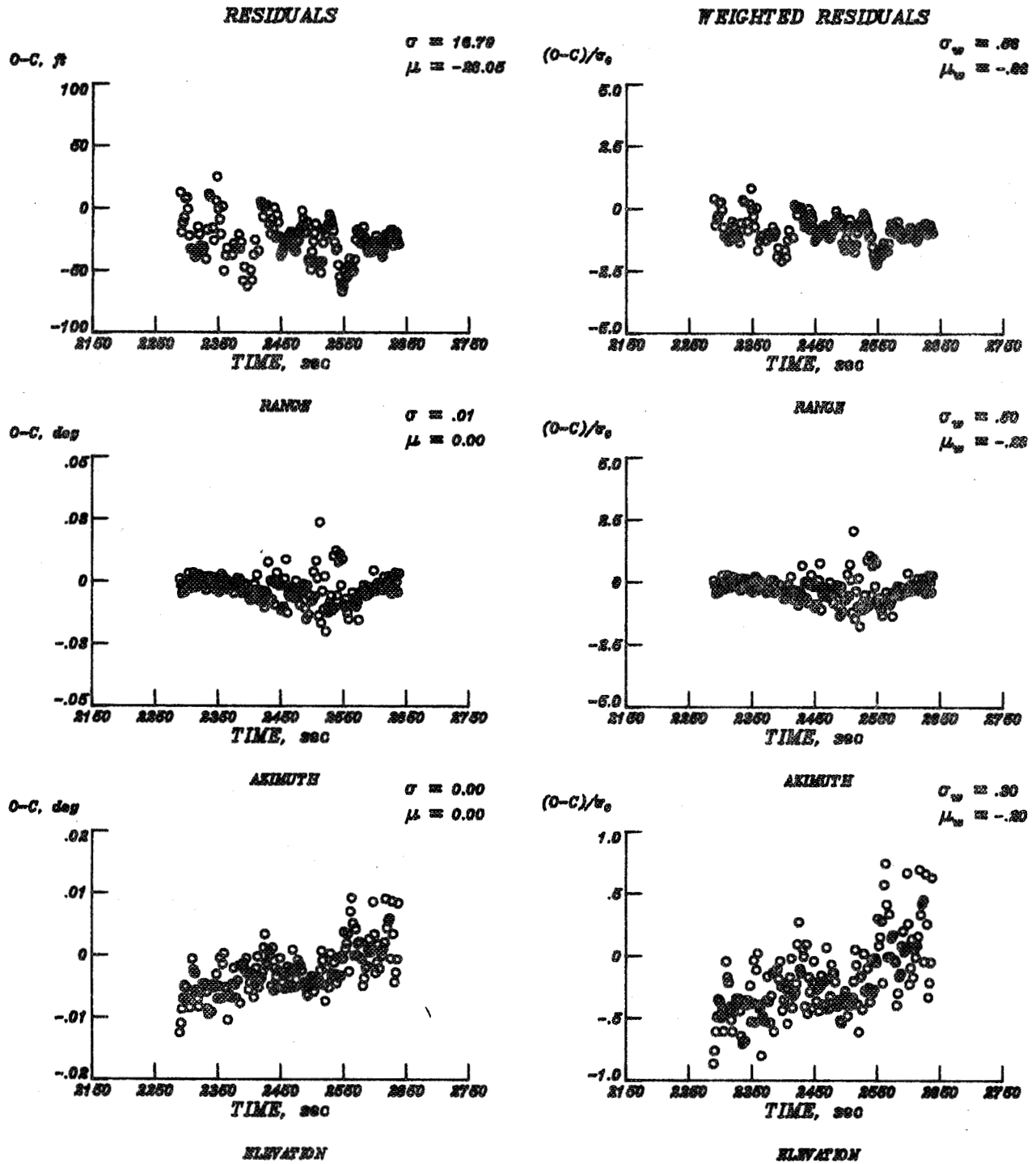
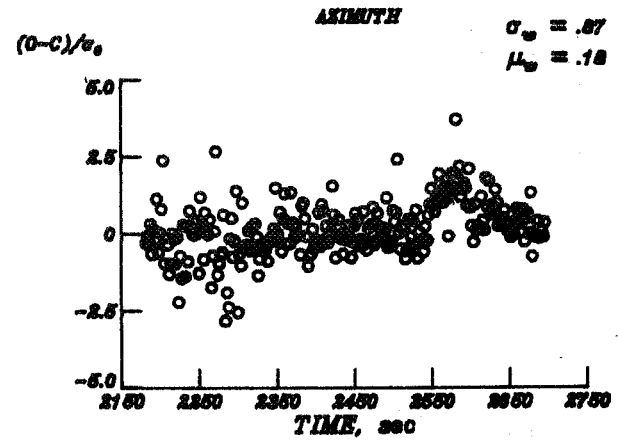
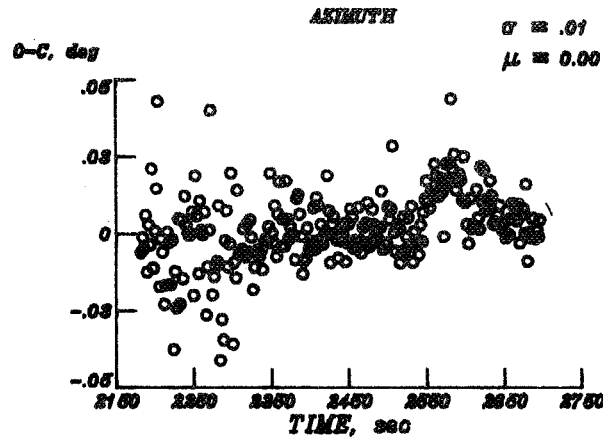
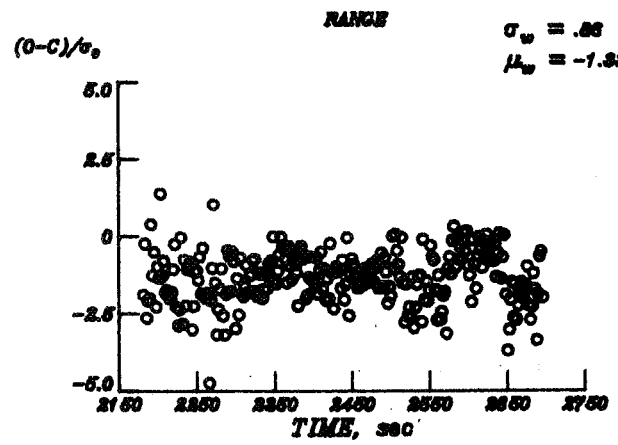
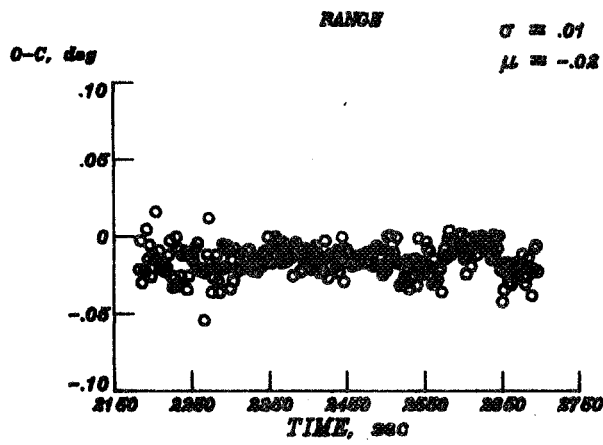
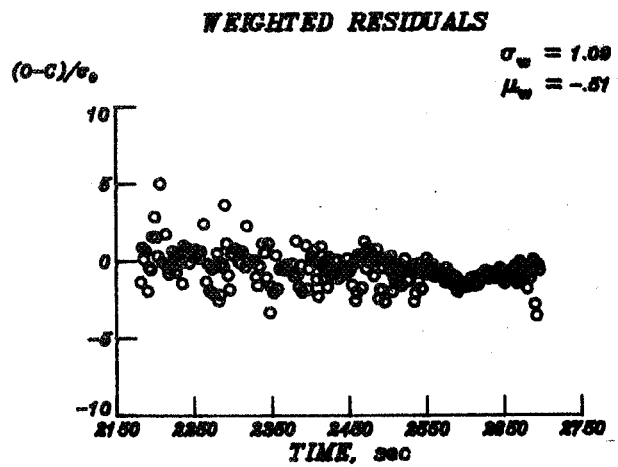
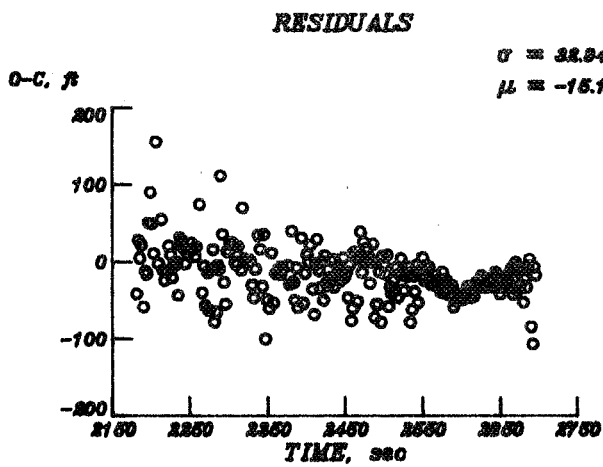


Fig. B-9. Smoothed residuals versus time for PATC



**ELEVATION**

**ELEVATION**

Fig. B-10. Smoothed residuals versus time for CNVC

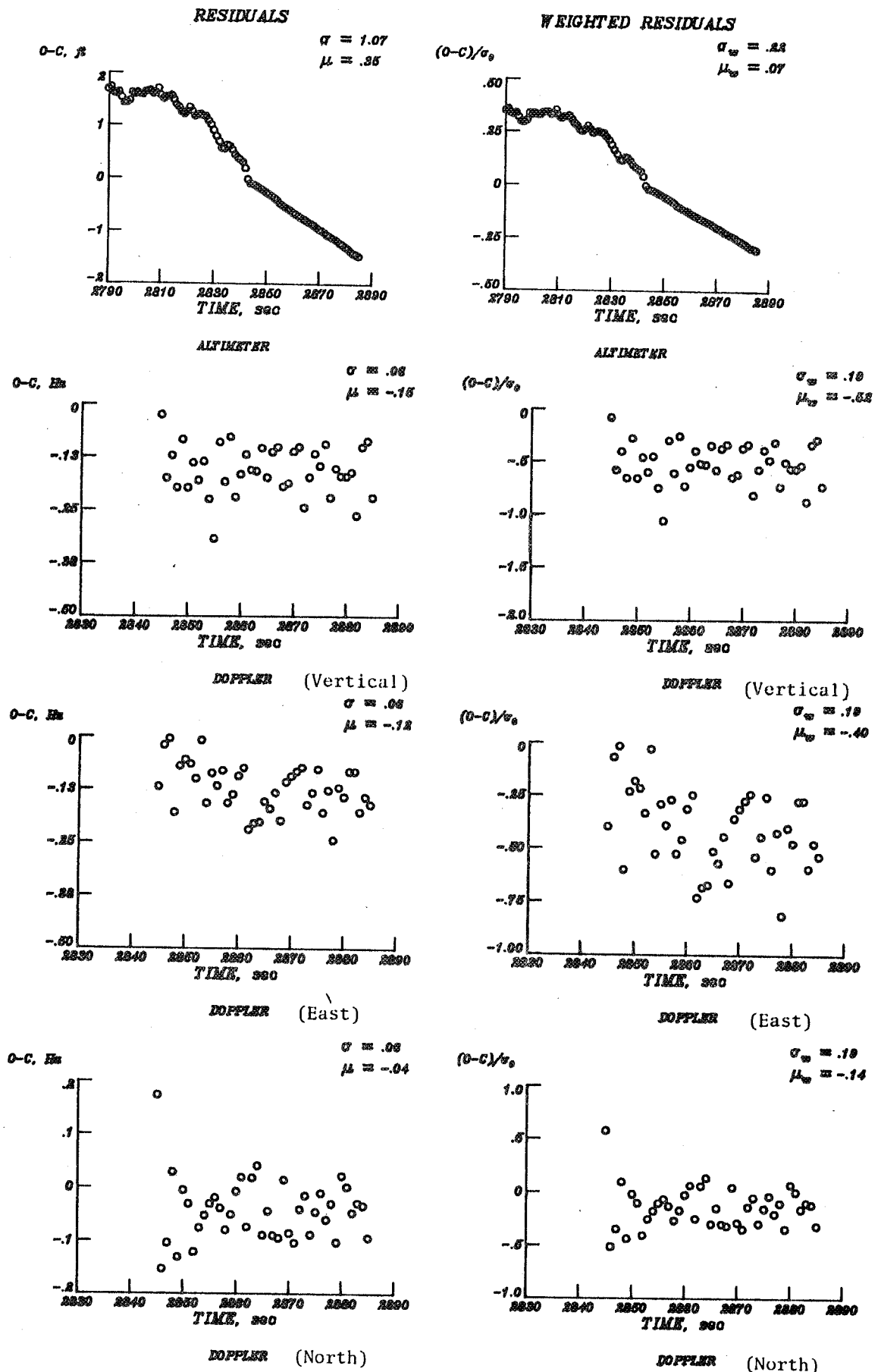


Fig. B-11. Smoothed residuals for altimeter and Doppler (pseudo data).



APPENDIX C

Listing of ST11BET air relative parameters

@ 1.0 sec

(t, h,  $V_A$ ,  $\gamma_A$ ,  $\psi_A$ ,  $\sigma_A$ ,  $\beta_A$ ,  $\alpha_A$ ,  $M_A$ ,  $q_A$ )

\*\*\*\*\*  
 \* LARC "EXTENDED" BET HEADER RECORD \*  
 \*\*\*\*\*

...DESCRIPTIVE DATA ( 48-WORDS )

ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA.

040211 2886 STS-11 INERTIAL BET /BT11A12/ (TREF=41380)

INITIAL CONDITIONS FROM BT11A09

IMU NBR 2 EA SEQ 1 (TAPE NLO210)

S,C-BAND, PSEUDO ALTIMETER (POST WONG), PSEUDO DOPPLER (POST STOP)

SOLUTION SET--STATE, PQR BIASES, ACCEL. SCALE FACTORS

...LABELS AND UNITS FOR DATA ITEMS

( 1 )	TIME	SEC	( 2 )	VEL A	FT/SEC	( 3 )	GAM A	DEG
( 4 )	HDG A	DEG	( 5 )	ALTDE	FEET	( 6 )	LATD	DEG
( 7 )	LONG	DEG	( 8 )	SIGMAA	DEG	( 9 )	BETA A	DEG
( 10 )	ALPHAA	DEG	( 11 )	YAW E	DEG	( 12 )	PTCH E	DEG
( 13 )	ROLL E	DEG	( 14 )	U	FT/SEC	( 15 )	V	FT/SEC
( 16 )	W	FT/SEC	( 17 )	VEL R	FT/SEC	( 18 )	GAM R	DEG
( 19 )	HDG R	DEG	( 20 )	SIGMAR	DEG	( 21 )	BETA R	DEG
( 22 )	ALPHAR	DEG	( 23 )	U-WIND	FT/SEC	( 24 )	V-WIND	FT/SEC
( 25 )	W-WIND	FT/SEC	( 26 )	SIG-VA	FT/SEC	( 27 )	SIG-GA	DEG
( 28 )	SIG-HA	DEG	( 29 )	SIG-H	FEET	( 30 )	SIG-LA	DEG
( 31 )	SIG-LO	DEG	( 32 )	SIG-SA	DEG	( 33 )	SIG-BA	DEG
( 34 )	SIG-AA	DEG	( 35 )	SIG-YE	DEG	( 36 )	SIG-PE	DEG
( 37 )	SIG-RE	DEG	( 38 )	SIG-U	FT/SEC	( 39 )	SIG-V	FT/SEC
( 40 )	SIG-W	FT/SEC	( 41 )	MACH A	NONE	( 42 )	MACH R	NONE
( 43 )	PINF	PSF	( 44 )	TEMP	DEG RANKIN	( 45 )	RHO	SLUGS/FT3
( 46 )	Q A	PSF	( 47 )	Q R	PSF	( 48 )	PSTAG	PSF
( 49 )	P	DEG/SEC	( 50 )	Q	DEG/SEC	( 51 )	R	DEG/SEC
( 52 )	X ACCEL	FT/SEC/SEC	( 53 )	Y ACCEL	FT/SEC/SEC	( 54 )	Z ACCEL	FT/SEC/SEC
( 55 )	CXB	NONE	( 56 )	CYB	NONE	( 57 )	CZB	NONE
( 58 )	CL	NONE	( 59 )	CD	NONE	( 60 )	L/D	NONE
( 61 )	CL-ROLL	NONE	( 62 )	CM-PITCH	NONE	( 63 )	CM-YAW	NONE
( 64 )	PDOT	DEG/SEC2	( 65 )	QDOT	DEG/SEC2	( 66 )	RDOT	DEG/SEC2

...NUMERICAL DATA

ISERNO 1 NWDS 66 IUNITS 2

EPOCH .41380000E+05 RADE

.20925741E+08 RADP

.20855591E+08 OMEGA

.72921151E-04

\*\*\*\*\*  
 \* ST11BET USING FLAIR11(4/13/84), INERTIAL-BT11A12, NJ0124 DYN. DATA. PAGE 1 \*  
 \*\*\*\*\*

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
0.0	827319.0	23852.4	-.729	59.616	-1.815	2.833	.594	12.038	.000
1.0	827014.3	23852.8	-.730	59.615	-1.824	2.834	.676	12.039	.000
2.0	826709.1	23853.2	-.731	59.615	-1.831	2.832	.741	12.041	.000
3.0	826403.5	23853.6	-.732	59.614	-1.841	2.830	.799	12.042	.000
4.0	826097.4	23853.9	-.734	59.613	-1.852	2.831	.859	12.044	.000
5.0	825790.8	23854.3	-.735	59.612	-1.864	2.835	.923	12.045	.000
6.0	825483.7	23854.7	-.736	59.612	-1.875	2.835	.983	12.047	.000
7.0	825176.1	23855.1	-.737	59.611	-1.889	2.839	1.043	12.049	.000
8.0	824868.1	23855.5	-.739	59.611	-1.901	2.842	1.106	12.050	.000
9.0	824559.5	23855.9	-.740	59.610	-1.908	2.843	1.173	12.052	.000
10.0	824250.6	23856.2	-.741	59.610	-1.925	2.846	1.240	12.053	.000
11.0	823941.1	23856.6	-.742	59.609	-1.946	2.852	1.306	12.055	.000
12.0	823631.1	23857.0	-.744	59.609	-1.962	2.856	1.372	12.056	.000
13.0	823320.7	23857.4	-.745	59.608	-1.972	2.857	1.439	12.058	.000
14.0	823009.7	23857.8	-.746	59.608	-1.985	2.859	1.505	12.059	.000
15.0	822698.3	23858.2	-.747	59.608	-2.013	2.865	1.578	12.061	.000
16.0	822386.5	23858.6	-.749	59.607	-2.029	2.870	1.650	12.063	.000
17.0	822074.1	23858.9	-.750	59.607	-2.048	2.876	1.722	12.064	.000
18.0	821761.3	23859.3	-.751	59.607	-2.077	2.872	1.794	12.066	.000
19.0	821448.0	23859.7	-.752	59.607	-2.118	2.862	1.869	12.067	.000
20.0	821134.2	23860.1	-.754	59.606	-2.166	2.852	1.945	12.069	.000
21.0	820819.9	23860.5	-.755	59.606	-2.203	2.841	2.020	12.070	.000
22.0	820505.2	23860.9	-.756	59.606	-2.258	2.831	2.096	12.072	.000
23.0	820190.0	23861.3	-.757	59.606	-2.303	2.820	2.172	12.074	.000
24.0	819874.3	23861.7	-.758	59.606	-2.349	2.802	2.250	12.075	.000
25.0	819558.1	23862.1	-.760	59.606	-2.393	2.792	2.330	12.077	.000
26.0	819241.5	23862.5	-.761	59.606	-2.445	2.785	2.414	12.078	.000
27.0	818924.3	23862.9	-.762	59.606	-2.491	2.771	2.492	12.080	.000
28.0	818606.8	23863.3	-.763	59.606	-2.544	2.762	2.574	12.082	.000
29.0	818288.7	23863.7	-.765	59.607	-2.595	2.753	2.658	12.083	.000

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
30.0	817970.2	23864.1	-.766	59.607	-2.644	2.740	2.744	12.085	.000
31.0	817651.2	23864.4	-.767	59.607	-2.705	2.727	2.813	12.086	.000
32.0	817331.7	23864.9	-.768	59.607	-2.726	2.721	2.878	12.088	.000
33.0	817011.8	23865.3	-.769	59.608	-2.710	2.717	2.940	12.090	.000
34.0	816691.4	23865.7	-.771	59.608	-2.699	2.716	3.003	12.091	.000
35.0	816370.6	23866.0	-.772	59.608	-2.688	2.711	3.070	12.093	.000
36.0	816049.2	23866.4	-.773	59.609	-2.676	2.711	3.139	12.094	.000
37.0	815727.4	23866.8	-.774	59.609	-2.669	2.704	3.209	12.096	.000
38.0	815405.1	23867.2	-.776	59.610	-2.655	2.706	3.277	12.098	.000
39.0	815082.4	23867.7	-.777	59.610	-2.646	2.708	3.348	12.099	.000
40.0	814759.2	23868.1	-.778	59.611	-2.640	2.704	3.415	12.101	.000
41.0	814435.5	23868.5	-.779	59.611	-2.630	2.705	3.485	12.103	.000
42.0	814111.3	23868.9	-.780	59.612	-2.619	2.702	3.556	12.104	.000
43.0	813786.7	23869.3	-.782	59.613	-2.612	2.700	3.630	12.106	.000
44.0	813461.6	23869.7	-.783	59.613	-2.609	2.704	3.706	12.108	.000
45.0	813136.1	23870.1	-.784	59.614	-2.603	2.702	3.779	12.109	.000
46.0	812810.1	23870.5	-.785	59.615	-2.602	2.703	3.857	12.111	.000
47.0	812483.6	23870.9	-.786	59.615	-2.601	2.703	3.934	12.112	.000
48.0	812156.7	23871.3	-.788	59.616	-2.599	2.702	4.007	12.114	.000
49.0	811829.2	23871.7	-.789	59.617	-2.591	2.706	4.086	12.116	.000
50.0	811501.4	23872.1	-.790	59.618	-2.590	2.710	4.167	12.117	.000
51.0	811173.0	23872.5	-.791	59.619	-2.593	2.715	4.245	12.119	.000
52.0	810844.2	23872.9	-.792	59.620	-2.588	2.716	4.328	12.121	.000
53.0	810515.0	23873.4	-.794	59.621	-2.587	2.718	4.400	12.122	.000
54.0	810185.3	23873.7	-.795	59.622	-2.595	2.721	4.461	12.124	.000
55.0	809855.1	23874.2	-.796	59.623	-2.592	2.721	4.520	12.126	.000
56.0	809524.5	23874.6	-.797	59.624	-2.595	2.725	4.582	12.127	.000
57.0	809193.4	23875.0	-.798	59.625	-2.597	2.736	4.640	12.129	.000
58.0	808861.8	23875.4	-.800	59.627	-2.599	2.744	4.696	12.131	.000
59.0	808529.8	23875.8	-.801	59.628	-2.609	2.746	4.755	12.132	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
60.0	808197.4	23876.2	-.802	59.629	-2.607	2.748	4.819	12.134	.000
61.0	807864.4	23876.6	-.803	59.630	-2.615	2.755	4.883	12.136	.000
62.0	807531.0	23877.0	-.804	59.632	-2.625	2.760	4.948	12.137	.000
63.0	807197.2	23877.5	-.806	59.633	-2.625	2.766	5.011	12.139	.000
64.0	806862.9	23877.9	-.807	59.634	-2.638	2.773	5.080	12.141	.000
65.0	806528.1	23878.3	-.808	59.636	-2.646	2.779	5.151	12.143	.000
66.0	806192.9	23878.7	-.809	59.637	-2.663	2.788	5.218	12.144	.000
67.0	805857.2	23879.1	-.810	59.639	-2.675	2.796	5.284	12.146	.000
68.0	805521.1	23879.6	-.812	59.640	-2.672	2.801	5.354	12.148	.000
69.0	805184.5	23879.9	-.813	59.642	-2.687	2.808	5.424	12.149	.000
70.0	804847.5	23880.4	-.814	59.643	-2.702	2.819	5.494	12.151	.000
71.0	804510.0	23880.8	-.815	59.645	-2.712	2.826	5.569	12.153	.000
72.0	804172.1	23881.2	-.816	59.647	-2.743	2.820	5.639	12.155	.000
73.0	803833.7	23881.7	-.817	59.648	-2.780	2.809	5.713	12.156	.000
74.0	803494.8	23882.1	-.819	59.650	-2.819	2.797	5.789	12.158	.000
75.0	803155.5	23882.5	-.820	59.652	-2.854	2.785	5.871	12.160	.000
76.0	802815.7	23882.9	-.821	59.654	-2.895	2.777	5.947	12.161	.000
77.0	802475.5	23883.4	-.822	59.656	-2.930	2.761	6.021	12.163	.000
78.0	802134.9	23883.8	-.823	59.658	-2.967	2.750	6.101	12.165	.000
79.0	801793.7	23884.2	-.824	59.659	-3.010	2.747	6.183	12.167	.000
80.0	801452.2	23884.6	-.826	59.661	-3.056	2.735	6.263	12.168	.000
81.0	801110.2	23885.0	-.827	59.663	-3.082	2.724	6.344	12.170	.000
82.0	800767.7	23885.5	-.828	59.665	-3.075	2.726	6.430	12.172	.000
83.0	800424.8	23885.9	-.829	59.667	-3.054	2.724	6.516	12.174	.000
84.0	800081.4	23886.3	-.830	59.670	-3.039	2.726	6.604	12.175	.000
85.0	799737.6	23886.8	-.831	59.672	-3.016	2.732	6.676	12.177	.000
86.0	799393.3	23887.2	-.833	59.674	-2.994	2.733	6.746	12.179	.000
87.0	799048.6	23887.6	-.834	59.676	-2.981	2.732	6.812	12.181	.000
88.0	798703.5	23888.1	-.835	59.678	-2.959	2.734	6.875	12.182	.000
89.0	798357.9	23888.5	-.836	59.681	-2.945	2.733	6.940	12.184	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
90.0	798011.9	23888.9	-.837	59.683	-2.932	2.736	7.008	12.186	.000
91.0	797665.4	23889.4	-.838	59.685	-2.918	2.742	7.078	12.188	.000
92.0	797318.4	23889.8	-.840	59.688	-2.905	2.743	7.149	12.189	.000
93.0	796971.1	23890.2	-.841	59.690	-2.885	2.745	7.220	12.191	.000
94.0	796623.2	23890.6	-.842	59.692	-2.869	2.760	7.290	12.193	.000
95.0	796275.0	23891.1	-.843	59.695	-2.856	2.760	7.362	12.195	.000
96.0	795926.3	23891.5	-.844	59.697	-2.849	2.765	7.438	12.197	.000
97.0	795577.1	23891.9	-.845	59.700	-2.839	2.771	7.511	12.198	.000
98.0	795227.6	23892.4	-.846	59.703	-2.824	2.775	7.582	12.200	.000
99.0	794877.5	23892.8	-.848	59.705	-2.814	2.785	7.656	12.202	.000
100.0	794527.1	23893.3	-.849	59.708	-2.804	2.788	7.735	12.204	.000
101.0	794176.1	23893.7	-.850	59.711	-2.794	2.796	7.814	12.206	.000
102.0	793824.8	23894.1	-.851	59.713	-2.790	2.802	7.888	12.207	.000
103.0	793473.0	23894.6	-.852	59.716	-2.780	2.807	7.967	12.209	.000
104.0	793120.8	23895.0	-.853	59.719	-2.780	2.816	8.048	12.211	.000
105.0	792768.1	23895.4	-.854	59.722	-2.771	2.825	8.131	12.213	.000
106.0	792415.0	23895.9	-.856	59.725	-2.774	2.823	8.190	12.215	.000
107.0	792061.5	23896.3	-.857	59.727	-2.793	2.806	8.190	12.216	.000
108.0	791707.5	23896.8	-.858	59.730	-2.808	2.793	8.173	12.218	.000
109.0	791353.2	23897.2	-.859	59.733	-2.821	2.779	8.159	12.220	.000
110.0	790998.4	23897.7	-.860	59.736	-2.847	2.766	8.144	12.222	.000
111.0	790643.1	23898.1	-.861	59.739	-2.854	2.757	8.133	12.224	.000
112.0	790287.4	23898.5	-.862	59.743	-2.885	2.745	8.119	12.226	.000
113.0	789931.3	23899.0	-.863	59.746	-2.902	2.732	8.111	12.227	.000
114.0	789574.7	23899.4	-.865	59.749	-2.916	2.721	8.101	12.229	.000
115.0	789217.8	23899.9	-.866	59.752	-2.942	2.712	8.091	12.231	.000
116.0	788860.3	23900.3	-.867	59.755	-2.972	2.703	8.082	12.233	.000
117.0	788502.5	23900.8	-.868	59.758	-2.987	2.692	8.073	12.235	.000
118.0	788144.2	23901.2	-.869	59.762	-3.015	2.682	8.070	12.237	.000
119.0	787785.5	23901.7	-.870	59.765	-3.038	2.672	8.061	12.239	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
120.0	787426.3	23902.1	-.871	59.768	-3.055	2.660	8.058	12.240	.000
121.0	787066.7	23902.6	-.872	59.772	-3.085	2.650	8.056	12.242	.000
122.0	786706.7	23903.0	-.874	59.775	-3.113	2.643	8.051	12.244	.000
123.0	786346.3	23903.4	-.875	59.779	-3.133	2.634	8.049	12.246	.000
124.0	785985.4	23903.9	-.876	59.782	-3.165	2.627	8.052	12.248	.000
125.0	785624.1	23904.4	-.877	59.786	-3.183	2.622	8.051	12.250	.000
126.0	785262.3	23904.8	-.878	59.789	-3.165	2.621	8.054	12.252	.000
127.0	784900.1	23905.3	-.879	59.793	-3.127	2.626	8.059	12.253	.000
128.0	784537.5	23905.7	-.880	59.797	-3.091	2.633	8.066	12.255	.000
129.0	784174.5	23906.2	-.881	59.800	-3.060	2.640	8.078	12.257	.000
130.0	783811.0	23906.6	-.882	59.804	-3.024	2.640	8.081	12.259	.000
131.0	783447.1	23907.1	-.884	59.808	-2.994	2.648	8.092	12.261	.000
132.0	783082.8	23907.5	-.885	59.812	-2.959	2.653	8.101	12.263	.000
133.0	782718.1	23908.0	-.886	59.815	-2.934	2.659	8.109	12.265	.000
134.0	782352.9	23908.4	-.887	59.819	-2.901	2.667	8.125	12.267	.000
135.0	781987.3	23908.9	-.888	59.823	-2.877	2.672	8.138	12.269	.000
136.0	781621.3	23909.4	-.889	59.827	-2.843	2.676	8.149	12.271	.000
137.0	781254.9	23909.8	-.890	59.831	-2.824	2.686	8.164	12.273	.000
138.0	780888.0	23910.3	-.891	59.835	-2.797	2.695	8.177	12.274	.000
139.0	780520.7	23910.7	-.892	59.839	-2.763	2.702	8.191	12.276	.000
140.0	780153.0	23911.2	-.893	59.843	-2.735	2.709	8.207	12.278	.000
141.0	779784.9	23911.6	-.895	59.847	-2.713	2.716	8.225	12.280	.000
142.0	779416.3	23912.1	-.896	59.852	-2.689	2.725	8.247	12.282	.000
143.0	779047.3	23912.6	-.897	59.856	-2.663	2.730	8.264	12.284	.000
144.0	778677.9	23913.0	-.898	59.860	-2.641	2.744	8.286	12.286	.000
145.0	778308.1	23913.5	-.899	59.864	-2.615	2.752	8.306	12.288	.000
146.0	777937.9	23913.9	-.900	59.868	-2.598	2.759	8.326	12.290	.000
147.0	777567.2	23914.4	-.901	59.873	-2.575	2.767	8.354	12.292	.000
148.0	777196.1	23914.9	-.902	59.877	-2.552	2.782	8.376	12.294	.000
149.0	776824.6	23915.3	-.903	59.882	-2.528	2.798	8.398	12.296	.000

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
150.0	776452.7	23915.8	-.904	59.886	-2.509	2.805	8.423	12.298	.000
151.0	776080.3	23916.3	-.906	59.890	-2.493	2.816	8.452	12.300	.000
152.0	775707.6	23916.7	-.907	59.895	-2.479	2.828	8.481	12.302	.000
153.0	775334.4	23917.2	-.908	59.899	-2.464	2.836	8.505	12.304	.000
154.0	774960.8	23917.6	-.909	59.904	-2.447	2.850	8.534	12.306	.000
155.0	774586.8	23918.1	-.910	59.909	-2.432	2.860	8.564	12.308	.000
156.0	774212.3	23918.6	-.911	59.913	-2.414	2.872	8.596	12.310	.000
157.0	773837.5	23919.0	-.912	59.918	-2.407	2.885	8.625	12.312	.000
158.0	773462.3	23919.5	-.913	59.923	-2.398	2.899	8.656	12.314	.000
159.0	773086.6	23920.0	-.914	59.927	-2.383	2.913	8.695	12.316	.000
160.0	772710.5	23920.4	-.915	59.932	-2.364	2.925	8.723	12.318	.000
161.0	772334.0	23920.9	-.916	59.937	-2.354	2.946	8.758	12.320	.000
162.0	771957.1	23921.4	-.917	59.942	-2.356	2.950	8.793	12.322	.000
163.0	771579.8	23921.9	-.918	59.947	-2.369	2.938	8.833	12.324	.000
164.0	771202.1	23922.3	-.919	59.952	-2.383	2.927	8.880	12.326	.000
165.0	770823.9	23922.8	-.921	59.957	-2.386	2.926	8.914	12.328	.000
166.0	770445.4	23923.3	-.922	59.962	-2.399	2.923	8.959	12.330	.000
167.0	770066.4	23923.7	-.923	59.967	-2.403	2.918	9.008	12.332	.000
168.0	769687.0	23924.2	-.924	59.972	-2.411	2.912	9.054	12.334	.000
169.0	769307.2	23924.7	-.925	59.977	-2.416	2.912	9.109	12.336	.000
170.0	768927.0	23925.2	-.926	59.982	-2.435	2.908	9.165	12.338	.000
171.0	768546.4	23925.6	-.927	59.987	-2.452	2.899	9.225	12.340	.000
172.0	768165.4	23926.1	-.928	59.992	-2.465	2.897	9.279	12.342	.000
173.0	767783.9	23926.6	-.929	59.998	-2.484	2.893	9.341	12.344	.000
174.0	767402.1	23927.0	-.930	60.003	-2.502	2.888	9.410	12.346	.000
175.0	767019.8	23927.5	-.931	60.008	-2.521	2.887	9.469	12.348	.000
176.0	766637.2	23928.0	-.932	60.014	-2.539	2.884	9.540	12.350	.000
177.0	766254.1	23928.5	-.933	60.019	-2.557	2.881	9.611	12.352	.000
178.0	765870.6	23929.0	-.934	60.024	-2.576	2.878	9.685	12.354	.000
179.0	765486.8	23929.4	-.935	60.030	-2.599	2.875	9.756	12.356	.000



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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
180.0	765102.5	23929.9	-.936	60.035	-2.617	2.872	9.827	12.358	.000
181.0	764717.8	23930.4	-.937	60.041	-2.645	2.869	9.915	12.361	.000
182.0	764332.7	23930.9	-.939	60.047	-2.665	2.866	9.992	12.363	.000
183.0	763947.2	23931.4	-.940	60.052	-2.689	2.864	10.072	12.365	.000
184.0	763561.3	23931.8	-.941	60.058	-2.714	2.863	10.159	12.367	.000
185.0	763175.0	23932.3	-.942	60.063	-2.738	2.862	10.240	12.369	.000
186.0	762788.3	23932.8	-.943	60.069	-2.761	2.860	10.327	12.371	.000
187.0	762401.2	23933.3	-.944	60.075	-2.786	2.856	10.416	12.373	.000
188.0	762013.7	23933.8	-.945	60.081	-2.817	2.855	10.504	12.375	.000
189.0	761625.8	23934.3	-.946	60.087	-2.850	2.857	10.603	12.377	.000
190.0	761237.5	23934.7	-.947	60.092	-2.877	2.850	10.699	12.380	.000
191.0	760848.8	23935.2	-.948	60.098	-2.900	2.849	10.794	12.382	.000
192.0	760459.7	23935.7	-.949	60.104	-2.940	2.848	10.894	12.384	.000
193.0	760070.2	23936.2	-.950	60.110	-2.970	2.849	10.995	12.386	.000
194.0	759680.3	23936.7	-.951	60.116	-2.997	2.848	11.099	12.388	.000
195.0	759290.0	23937.2	-.952	60.122	-3.033	2.849	11.202	12.390	.000
196.0	758899.3	23937.7	-.953	60.128	-3.071	2.848	11.314	12.392	.000
197.0	758508.2	23938.1	-.954	60.134	-3.098	2.849	11.420	12.394	.000
198.0	758116.7	23938.6	-.955	60.141	-3.166	2.820	11.529	12.397	.000
199.0	757724.8	23939.1	-.956	60.147	-3.266	2.743	11.650	12.399	.000
200.0	757332.5	23939.6	-.957	60.153	-3.361	2.673	11.769	12.401	.000
201.0	756939.9	23940.1	-.958	60.159	-3.456	2.608	11.885	12.403	.000
202.0	756546.8	23940.6	-.959	60.165	-3.563	2.540	12.006	12.405	.000
203.0	756153.3	23941.1	-.960	60.172	-3.626	2.480	12.127	12.407	.000
204.0	755759.5	23941.6	-.961	60.178	-3.617	2.437	12.264	12.410	.000
205.0	755365.2	23942.1	-.962	60.185	-3.596	2.406	12.396	12.412	.000
206.0	754970.5	23942.5	-.963	60.191	-3.575	2.372	12.532	12.414	.000
207.0	754575.5	23943.1	-.964	60.197	-3.550	2.340	12.669	12.416	.000
208.0	754180.1	23943.5	-.965	60.204	-3.539	2.308	12.806	12.418	.000
209.0	753784.2	23944.0	-.966	60.210	-3.503	2.278	12.948	12.421	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
210.0	753388.0	23944.5	-.967	60.217	-3.489	2.246	13.090	12.423	.000
211.0	752991.4	23945.0	-.968	60.224	-3.476	2.211	13.236	12.425	.000
212.0	752594.4	23945.5	-.969	60.230	-3.444	2.179	13.385	12.427	.000
213.0	752197.0	23946.0	-.970	60.237	-3.433	2.152	13.533	12.430	.000
214.0	751799.2	23946.5	-.971	60.244	-3.414	2.120	13.688	12.432	.000
215.0	751401.1	23947.0	-.972	60.250	-3.386	2.092	13.837	12.434	.000
216.0	751002.5	23947.5	-.973	60.257	-3.375	2.065	13.997	12.436	.000
217.0	750603.6	23948.0	-.974	60.264	-3.360	2.034	14.151	12.438	.000
218.0	750204.3	23948.5	-.975	60.271	-3.346	2.004	14.307	12.441	.000
219.0	749804.6	23949.0	-.976	60.278	-3.326	1.973	14.472	12.443	.000
220.0	749404.5	23949.5	-.977	60.285	-3.310	1.947	14.635	12.445	.000
221.0	749004.0	23950.0	-.978	60.292	-3.297	1.919	14.796	12.447	.000
222.0	748603.1	23950.5	-.979	60.299	-3.288	1.890	14.967	12.450	.000
223.0	748201.9	23951.0	-.980	60.306	-3.268	1.864	15.135	12.452	.000
224.0	747800.3	23951.5	-.981	60.313	-3.260	1.838	15.304	12.454	.000
225.0	747398.3	23952.0	-.982	60.320	-3.246	1.808	15.478	12.457	.000
226.0	746995.9	23952.5	-.983	60.327	-3.231	1.780	15.650	12.459	.000
227.0	746593.1	23953.0	-.984	60.334	-3.218	1.756	15.818	12.461	.000
228.0	746189.9	23953.5	-.985	60.342	-3.216	1.727	15.966	12.463	.000
229.0	745786.4	23954.0	-.986	60.349	-3.204	1.704	16.094	12.466	.000
230.0	745382.5	23954.5	-.987	60.356	-3.189	1.680	16.216	12.468	.000
231.0	744978.3	23955.0	-.988	60.363	-3.191	1.655	16.327	12.470	.000
232.0	744573.6	23955.5	-.989	60.371	-3.182	1.628	16.419	12.473	.000
233.0	744168.6	23956.0	-.990	60.378	-3.172	1.603	16.515	12.475	.000
234.0	743763.3	23956.5	-.991	60.386	-3.163	1.577	16.608	12.477	.000
235.0	743357.5	23957.0	-.992	60.393	-3.157	1.549	16.696	12.480	.000
236.0	742951.4	23957.5	-.993	60.401	-3.157	1.522	16.780	12.482	.000
237.0	742544.9	23958.0	-.994	60.408	-3.154	1.497	16.850	12.484	.000
238.0	742138.0	23958.6	-.995	60.416	-3.149	1.470	16.923	12.487	.000
239.0	741730.8	23959.1	-.996	60.423	-3.156	1.450	16.998	12.489	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
240.0	741323.1	23959.6	-.997	60.431	-3.148	1.424	17.076	12.491	.000
241.0	740915.1	23960.1	-.998	60.439	-3.146	1.398	17.154	12.494	.000
242.0	740506.8	23960.6	-.999	60.446	-3.141	1.373	17.241	12.496	.000
243.0	740098.0	23961.1	-1.000	60.454	-3.140	1.352	17.327	12.498	.000
244.0	739688.9	23961.6	-1.001	60.462	-3.138	1.327	17.409	12.501	.000
245.0	739279.4	23962.1	-1.002	60.470	-3.138	1.302	17.479	12.503	.000
246.0	738869.6	23962.6	-1.003	60.478	-3.140	1.279	17.545	12.506	.000
247.0	738459.4	23963.2	-1.004	60.486	-3.144	1.259	17.614	12.508	.000
248.0	738048.8	23963.7	-1.005	60.494	-3.150	1.238	17.687	12.510	.000
249.0	737637.8	23964.2	-1.005	60.502	-3.148	1.213	17.760	12.513	.000
250.0	737226.5	23964.7	-1.006	60.510	-3.148	1.191	17.837	12.515	.000
251.0	736814.8	23965.2	-1.007	60.518	-3.152	1.169	17.916	12.517	.000
252.0	736402.7	23965.7	-1.008	60.526	-3.155	1.146	17.991	12.520	.000
253.0	735990.3	23966.2	-1.009	60.534	-3.154	1.124	18.077	12.522	.000
254.0	735577.5	23966.7	-1.010	60.542	-3.155	1.103	18.160	12.525	.000
255.0	735164.3	23967.3	-1.011	60.550	-3.169	1.083	18.245	12.527	.000
256.0	734750.7	23967.8	-1.012	60.558	-3.173	1.061	18.335	12.530	.000
257.0	734336.8	23968.3	-1.013	60.567	-3.181	1.039	18.372	12.532	.000
258.0	733922.6	23968.9	-1.014	60.575	-3.185	1.019	18.358	12.535	.000
259.0	733508.0	23969.4	-1.015	60.583	-3.193	1.003	18.322	12.537	.000
260.0	733093.1	23969.9	-1.016	60.592	-3.205	.984	18.291	12.539	.000
261.0	732677.8	23970.4	-1.017	60.600	-3.205	.960	18.270	12.542	.000
262.0	732262.1	23970.9	-1.018	60.609	-3.208	.948	18.247	12.544	.000
263.0	731846.1	23971.4	-1.019	60.617	-3.225	.928	18.224	12.547	.000
264.0	731429.7	23972.0	-1.019	60.626	-3.232	.913	18.209	12.549	.000
265.0	731012.9	23972.5	-1.020	60.634	-3.240	.892	18.194	12.552	.000
266.0	730595.8	23973.0	-1.021	60.643	-3.252	.875	18.184	12.554	.000
267.0	730178.3	23973.5	-1.022	60.651	-3.255	.854	18.168	12.557	.000
268.0	729760.5	23974.0	-1.023	60.660	-3.264	.837	18.165	12.559	.000
269.0	729342.3	23974.5	-1.024	60.669	-3.279	.819	18.162	12.562	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
270.0	728923.7	23975.1	-1.025	60.677	-3.286	.804	18.156	12.564	.000
271.0	728504.8	23975.6	-1.026	60.686	-3.295	.792	18.156	12.567	.000
272.0	728085.6	23976.1	-1.027	60.695	-3.306	.775	18.162	12.569	.000
273.0	727665.9	23976.6	-1.028	60.704	-3.321	.761	18.165	12.572	.000
274.0	727245.9	23977.1	-1.029	60.713	-3.330	.744	18.170	12.574	.000
275.0	726825.6	23977.7	-1.030	60.722	-3.343	.728	18.179	12.577	.000
276.0	726404.9	23978.2	-1.031	60.731	-3.353	.712	18.189	12.579	.000
277.0	725983.8	23978.7	-1.032	60.740	-3.370	.701	18.203	12.582	.000
278.0	725562.4	23979.3	-1.032	60.749	-3.387	.687	18.219	12.585	.000
279.0	725140.6	23979.8	-1.033	60.758	-3.399	.677	18.239	12.587	.000
280.0	724718.5	23980.3	-1.034	60.767	-3.414	.668	18.258	12.590	.000
281.0	724296.0	23980.8	-1.035	60.776	-3.427	.650	18.288	12.592	.000
282.0	723873.2	23981.4	-1.036	60.785	-3.445	.635	18.309	12.595	.000
283.0	723450.0	23981.9	-1.037	60.794	-3.462	.625	18.331	12.597	.000
284.0	723026.4	23982.4	-1.038	60.804	-3.480	.612	18.365	12.600	.000
285.0	722602.5	23983.0	-1.039	60.813	-3.494	.596	18.389	12.603	.000
286.0	722178.3	23983.5	-1.040	60.822	-3.458	.613	18.427	12.605	.000
287.0	721753.7	23984.0	-1.041	60.831	-3.413	.626	18.466	12.608	.000
288.0	721328.7	23984.5	-1.042	60.841	-3.373	.637	18.512	12.610	.000
289.0	720903.4	23985.1	-1.042	60.850	-3.343	.650	18.556	12.613	.000
290.0	720477.8	23985.6	-1.043	60.860	-3.306	.657	18.602	12.616	.000
291.0	720051.8	23986.1	-1.044	60.869	-3.266	.667	18.649	12.618	.000
292.0	719625.4	23986.7	-1.045	60.879	-3.235	.678	18.704	12.621	.000
293.0	719198.7	23987.2	-1.046	60.888	-3.204	.689	18.758	12.624	.000
294.0	718771.7	23987.7	-1.047	60.898	-3.172	.700	18.815	12.626	.000
295.0	718344.3	23988.3	-1.048	60.908	-3.145	.710	18.876	12.629	.000
296.0	717916.6	23988.8	-1.049	60.917	-3.113	.726	18.935	12.632	.000
297.0	717488.5	23989.4	-1.050	60.927	-3.074	.737	18.994	12.634	.000
298.0	717060.1	23989.9	-1.050	60.937	-3.042	.745	19.061	12.637	.000
299.0	716631.3	23990.4	-1.051	60.947	-3.023	.755	19.127	12.640	.000

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 11 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
300.0	716202.2	23990.9	-1.052	60.956	-2.993	.766	19.194	12.642	.000
301.0	715772.8	23991.5	-1.053	60.966	-2.958	.779	19.269	12.645	.000
302.0	715343.0	23992.0	-1.054	60.976	-2.941	.794	19.343	12.648	.000
303.0	714912.8	23992.6	-1.055	60.986	-2.920	.800	19.421	12.650	.000
304.0	714482.4	23993.1	-1.056	60.996	-2.895	.809	19.497	12.653	.000
305.0	714051.5	23993.6	-1.057	61.006	-2.876	.822	19.584	12.656	.000
306.0	713620.4	23994.2	-1.057	61.016	-2.860	.833	19.667	12.659	.000
307.0	713188.9	23994.7	-1.058	61.026	-2.843	.843	19.749	12.661	.000
308.0	712757.0	23995.3	-1.059	61.036	-2.818	.854	19.837	12.664	.000
309.0	712324.9	23995.8	-1.060	61.046	-2.790	.867	19.926	12.667	.000
310.0	711892.3	23996.3	-1.061	61.057	-2.779	.882	20.019	12.670	.000
311.0	711459.5	23996.9	-1.062	61.067	-2.766	.892	20.112	12.672	.000
312.0	711026.3	23997.4	-1.063	61.077	-2.751	.899	20.204	12.675	.000
313.0	710592.8	23997.9	-1.064	61.088	-2.731	.914	20.302	12.678	.000
314.0	710158.9	23998.5	-1.064	61.098	-2.713	.926	20.400	12.681	.000
315.0	709724.7	23999.0	-1.065	61.108	-2.708	.940	20.504	12.684	.000
316.0	709290.2	23999.6	-1.066	61.119	-2.694	.952	20.605	12.686	.000
317.0	708855.3	24000.1	-1.067	61.129	-2.680	.966	20.712	12.689	.000
318.0	708420.1	24000.7	-1.068	61.140	-2.669	.979	20.817	12.692	.000
319.0	707984.6	24001.2	-1.069	61.150	-2.664	.992	20.923	12.695	.000
320.0	707548.7	24001.8	-1.070	61.161	-2.649	1.003	21.032	12.698	.000
321.0	707112.5	24002.3	-1.070	61.171	-2.642	1.018	21.149	12.700	.000
322.0	706676.0	24002.8	-1.071	61.182	-2.639	1.032	21.262	12.703	.000
323.0	706239.1	24003.4	-1.072	61.193	-2.626	1.045	21.383	12.706	.000
324.0	705801.9	24003.9	-1.073	61.203	-2.621	1.059	21.504	12.709	.000
325.0	705364.4	24004.5	-1.074	61.214	-2.619	1.070	21.615	12.712	.000
326.0	704926.5	24005.0	-1.075	61.225	-2.612	1.086	21.743	12.715	.000
327.0	704488.3	24005.6	-1.075	61.236	-2.609	1.102	21.867	12.718	.000
328.0	704049.8	24006.1	-1.076	61.246	-2.603	1.118	21.996	12.720	.000
329.0	703611.0	24006.7	-1.077	61.257	-2.601	1.136	22.124	12.723	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
330.0	703171.8	24007.2	-1.078	61.268	-2.604	1.147	22.256	12.726	.000
331.0	702732.3	24007.8	-1.079	61.279	-2.609	1.156	22.387	12.729	.000
332.0	702292.5	24008.3	-1.080	61.290	-2.607	1.171	22.517	12.732	.000
333.0	701852.4	24008.9	-1.081	61.301	-2.598	1.190	22.659	12.735	.000
334.0	701411.9	24009.4	-1.081	61.312	-2.605	1.200	22.795	12.738	.000
335.0	700971.1	24010.0	-1.082	61.323	-2.606	1.215	22.932	12.741	.000
336.0	700530.0	24010.5	-1.083	61.335	-2.610	1.234	23.073	12.744	.000
337.0	700088.6	24011.1	-1.084	61.346	-2.608	1.251	23.215	12.747	.000
338.0	699646.8	24011.6	-1.085	61.357	-2.619	1.268	23.351	12.750	.000
339.0	699204.7	24012.2	-1.085	61.368	-2.623	1.285	23.470	12.753	.000
340.0	698762.3	24012.7	-1.086	61.379	-2.632	1.299	23.582	12.756	.000
341.0	698319.6	24013.3	-1.087	61.391	-2.635	1.312	23.684	12.759	.000
342.0	697876.6	24013.8	-1.088	61.402	-2.643	1.326	23.777	12.762	.000
343.0	697433.3	24014.4	-1.089	61.414	-2.651	1.342	23.857	12.765	.000
344.0	696989.6	24014.9	-1.089	61.425	-2.661	1.357	23.939	12.768	.000
345.0	696545.7	24015.5	-1.090	61.437	-2.675	1.371	24.029	12.771	.000
346.0	696101.4	24016.0	-1.091	61.448	-2.684	1.388	24.119	12.774	.000
347.0	695656.8	24016.6	-1.092	61.460	-2.692	1.411	24.208	12.777	.000
348.0	695211.9	24017.2	-1.093	61.471	-2.704	1.424	24.286	12.780	.000
349.0	694766.6	24017.7	-1.094	61.483	-2.724	1.437	24.358	12.783	.000
350.0	694321.1	24018.3	-1.094	61.494	-2.731	1.457	24.429	12.786	.000
351.0	693875.2	24018.8	-1.095	61.506	-2.750	1.468	24.502	12.789	.000
352.0	693429.1	24019.4	-1.096	61.518	-2.769	1.488	24.572	12.792	.000
353.0	692982.6	24020.0	-1.097	61.530	-2.779	1.507	24.654	12.795	.000
354.0	692535.8	24020.5	-1.097	61.541	-2.790	1.522	24.734	12.798	.000
355.0	692088.7	24021.1	-1.098	61.553	-2.808	1.538	24.811	12.801	.000
356.0	691641.3	24021.6	-1.099	61.565	-2.835	1.556	24.894	12.804	.000
357.0	691193.5	24022.2	-1.100	61.577	-2.856	1.571	24.984	12.807	.000
358.0	690745.5	24022.7	-1.101	61.589	-2.870	1.582	25.068	12.810	.000
359.0	690297.1	24023.3	-1.102	61.601	-2.897	1.604	25.136	12.813	.000

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 13 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
360.0	689848.4	24023.9	-1.102	61.613	-2.918	1.620	25.206	12.817	.000
361.0	689399.5	24024.4	-1.103	61.625	-2.942	1.633	25.273	12.820	.000
362.0	688950.2	24025.0	-1.104	61.637	-2.961	1.654	25.342	12.823	.000
363.0	688500.6	24025.6	-1.105	61.649	-2.985	1.668	25.415	12.826	.000
364.0	688050.7	24026.1	-1.105	61.662	-3.007	1.685	25.493	12.829	.000
365.0	687600.5	24026.7	-1.106	61.674	-3.034	1.703	25.569	12.832	.000
366.0	687150.0	24027.2	-1.107	61.686	-3.058	1.716	25.647	12.836	.000
367.0	686699.2	24027.8	-1.108	61.698	-3.084	1.733	25.726	12.839	.000
368.0	686248.1	24028.4	-1.109	61.711	-3.113	1.754	25.807	12.842	.000
369.0	685796.7	24028.9	-1.109	61.723	-3.141	1.764	25.896	12.845	.000
370.0	685344.9	24029.5	-1.110	61.735	-3.174	1.780	25.986	12.848	.000
371.0	684892.9	24030.1	-1.111	61.748	-3.200	1.800	26.070	12.852	.000
372.0	684440.5	24030.6	-1.112	61.760	-3.235	1.815	26.144	12.855	.000
373.0	683987.9	24031.2	-1.112	61.773	-3.275	1.814	26.209	12.858	.000
374.0	683535.0	24031.8	-1.113	61.785	-3.319	1.805	26.281	12.861	.000
375.0	683081.8	24032.3	-1.114	61.798	-3.367	1.798	26.353	12.865	.000
376.0	682628.2	24032.9	-1.115	61.810	-3.412	1.786	26.428	12.868	.000
377.0	682174.4	24033.5	-1.115	61.823	-3.463	1.776	26.507	12.871	.000
378.0	681720.3	24034.0	-1.116	61.836	-3.515	1.766	26.587	12.874	.000
379.0	681265.8	24034.6	-1.117	61.849	-3.566	1.755	26.666	12.878	.000
380.0	680811.1	24035.2	-1.118	61.861	-3.615	1.742	26.747	12.881	.000
381.0	680356.0	24035.7	-1.118	61.874	-3.670	1.712	26.839	12.884	.000
382.0	679900.7	24036.3	-1.119	61.887	-3.740	1.674	26.923	12.888	.000
383.0	679445.1	24036.9	-1.120	61.900	-3.811	1.637	27.002	12.891	.000
384.0	678989.2	24037.4	-1.121	61.913	-3.873	1.596	27.003	12.894	.000
385.0	678533.1	24038.0	-1.121	61.926	-3.937	1.559	26.971	12.898	.000
386.0	678076.6	24038.6	-1.122	61.939	-4.003	1.525	26.940	12.901	.000
387.0	677619.9	24039.2	-1.123	61.952	-4.072	1.488	26.911	12.904	.000
388.0	677162.9	24039.7	-1.124	61.965	-4.148	1.450	26.888	12.908	.000
389.0	676705.5	24040.3	-1.124	61.978	-4.214	1.415	26.862	12.911	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
390.0	676247.9	24040.9	-1.125	61.991	-4.285	1.375	26.841	12.914	.000
391.0	675790.0	24041.4	-1.126	62.004	-4.342	1.348	26.826	12.918	.000
392.0	675331.8	24042.0	-1.127	62.017	-4.361	1.340	26.818	12.921	.000
393.0	674873.3	24042.6	-1.127	62.031	-4.373	1.340	26.808	12.925	.000
394.0	674414.5	24043.2	-1.128	62.044	-4.386	1.337	26.800	12.928	.000
395.0	673955.4	24043.7	-1.129	62.057	-4.406	1.331	26.792	12.931	.000
396.0	673496.0	24044.3	-1.130	62.070	-4.416	1.326	26.790	12.935	.000
397.0	673036.3	24044.9	-1.130	62.084	-4.443	1.317	26.787	12.938	.000
398.0	672576.4	24045.5	-1.131	62.097	-4.430	1.331	26.797	12.942	.000
399.0	672116.2	24046.0	-1.132	62.111	-4.395	1.363	26.803	12.945	.000
400.0	671655.6	24046.6	-1.132	62.124	-4.351	1.395	26.817	12.949	.000
401.0	671194.8	24047.2	-1.133	62.138	-4.317	1.417	26.822	12.952	.000
402.0	670733.7	24047.8	-1.134	62.151	-4.289	1.446	26.837	12.956	.000
403.0	670272.3	24048.3	-1.135	62.165	-4.256	1.479	26.858	12.959	.000
404.0	669810.6	24048.9	-1.135	62.179	-4.220	1.506	26.873	12.963	.000
405.0	669348.7	24049.5	-1.136	62.192	-4.194	1.533	26.893	12.966	.000
406.0	668886.4	24050.1	-1.137	62.206	-4.153	1.561	26.915	12.970	.000
407.0	668423.9	24050.7	-1.137	62.220	-4.125	1.594	26.946	12.973	.000
408.0	667961.1	24051.2	-1.138	62.234	-4.097	1.615	26.971	12.977	.000
409.0	667498.0	24051.8	-1.139	62.248	-4.089	1.614	26.997	12.981	.000
410.0	667034.6	24052.4	-1.140	62.261	-4.077	1.617	27.032	12.984	.000
411.0	666571.0	24053.0	-1.140	62.275	-4.056	1.615	27.063	12.988	.000
412.0	666107.0	24053.6	-1.141	62.289	-4.046	1.615	27.095	12.991	.000
413.0	665642.8	24054.1	-1.142	62.303	-4.034	1.618	27.133	12.995	.000
414.0	665178.3	24054.7	-1.142	62.317	-4.027	1.621	27.174	12.999	.000
415.0	664713.5	24055.3	-1.143	62.331	-4.013	1.622	27.217	13.002	.000
416.0	664248.5	24055.9	-1.144	62.345	-3.999	1.623	27.259	13.006	.000
417.0	663783.1	24056.5	-1.145	62.360	-3.996	1.625	27.305	13.010	.000
418.0	663317.5	24057.0	-1.145	62.374	-3.988	1.625	27.348	13.013	.000
419.0	662851.6	24057.6	-1.146	62.388	-3.976	1.630	27.398	13.017	.000



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 \* ST11BET USING FLAIR11(4/13/84), INERTIAL-BT11A12, NJ0124 DYN. DATA. PAGE 15 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
420.0	662385.5	24058.2	-1.147	62.402	-3.970	1.633	27.447	13.021	.000
421.0	661919.0	24058.8	-1.147	62.416	-3.968	1.633	27.500	13.024	.000
422.0	661452.3	24059.4	-1.148	62.431	-3.955	1.631	27.556	13.028	.000
423.0	660985.3	24060.0	-1.149	62.445	-3.960	1.638	27.613	13.032	.000
424.0	660518.0	24060.6	-1.149	62.459	-3.948	1.641	27.673	13.035	.000
425.0	660050.5	24061.1	-1.150	62.474	-3.944	1.643	27.733	13.039	.000
426.0	659582.7	24061.7	-1.151	62.488	-3.946	1.645	27.797	13.043	.000
427.0	659114.6	24062.3	-1.151	62.503	-3.946	1.648	27.864	13.047	.000
428.0	658646.3	24062.9	-1.152	62.517	-3.944	1.649	27.931	13.050	.000
429.0	658177.6	24063.5	-1.153	62.532	-3.944	1.646	27.999	13.054	.000
430.0	657708.8	24064.1	-1.153	62.547	-3.942	1.655	28.070	13.058	.000
431.0	657239.6	24064.6	-1.154	62.561	-3.948	1.658	28.147	13.062	.000
432.0	656770.2	24065.3	-1.155	62.576	-3.951	1.657	28.221	13.066	.000
433.0	656300.4	24065.8	-1.156	62.591	-3.950	1.660	28.300	13.380	.000
434.0	655830.5	24066.4	-1.156	62.606	-3.952	1.663	28.380	13.384	.000
435.0	655360.2	24067.0	-1.157	62.620	-3.958	1.666	28.462	13.388	.000
436.0	654889.7	24067.6	-1.158	62.635	-3.965	1.665	28.542	13.392	.000
437.0	654419.0	24068.2	-1.158	62.650	-3.972	1.666	28.630	13.395	.000
438.0	653947.9	24068.8	-1.159	62.665	-3.979	1.673	28.719	13.399	.000
439.0	653476.6	24069.4	-1.160	62.680	-3.987	1.675	28.809	13.403	.000
440.0	653005.0	24070.0	-1.160	62.695	-3.998	1.678	28.899	13.407	.000
441.0	652533.2	24070.5	-1.161	62.710	-4.008	1.680	28.988	13.411	.000
442.0	652061.1	24071.2	-1.161	62.725	-4.011	1.685	29.086	13.415	.000
443.0	651588.8	24071.7	-1.162	62.740	-4.021	1.682	29.187	13.419	.000
444.0	651116.1	24072.3	-1.163	62.755	-4.030	1.685	29.288	13.422	.000
445.0	650643.3	24072.9	-1.163	62.770	-4.041	1.690	29.384	13.426	.000
446.0	650170.1	24073.5	-1.164	62.786	-4.067	1.679	29.490	13.430	.000
447.0	649696.7	24074.1	-1.165	62.801	-4.088	1.659	29.596	13.434	.000
448.0	649223.0	24074.7	-1.165	62.816	-4.121	1.627	29.698	13.438	.000
449.0	648749.1	24075.3	-1.166	62.831	-4.144	1.602	29.816	13.442	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
450.0	648274.9	24075.9	-1.167	62.847	-4.164	1.581	29.930	13.446	.000
451.0	647800.5	24076.5	-1.167	62.862	-4.192	1.556	30.040	13.450	.000
452.0	647325.8	24077.1	-1.168	62.878	-4.229	1.527	30.153	13.454	.000
453.0	646850.8	24077.7	-1.169	62.893	-4.260	1.501	30.272	13.458	.000
454.0	646375.6	24078.2	-1.169	62.909	-4.287	1.481	30.395	13.462	.000
455.0	645900.2	24078.9	-1.170	62.924	-4.317	1.448	30.521	13.466	.000
456.0	645424.5	24079.4	-1.171	62.940	-4.351	1.421	30.640	13.470	.000
457.0	644948.5	24080.1	-1.171	62.955	-4.391	1.392	30.764	13.474	.000
458.0	644472.3	24080.6	-1.172	62.971	-4.417	1.367	30.892	13.478	.000
459.0	643995.8	24081.2	-1.172	62.987	-4.454	1.344	31.025	13.483	.000
460.0	643519.0	24081.8	-1.173	63.003	-4.486	1.315	31.155	13.487	.000
461.0	643042.0	24082.4	-1.174	63.018	-4.517	1.290	31.287	13.491	.000
462.0	642564.8	24083.0	-1.174	63.034	-4.556	1.262	31.423	13.495	.000
463.0	642087.3	24083.6	-1.175	63.050	-4.587	1.239	31.561	13.499	.000
464.0	641609.6	24084.2	-1.176	63.066	-4.625	1.212	31.703	13.503	.000
465.0	641131.6	24084.8	-1.176	63.082	-4.649	1.190	31.846	13.507	.000
466.0	640653.4	24085.4	-1.177	63.098	-4.633	1.209	31.993	13.512	.000
467.0	640174.9	24086.0	-1.177	63.114	-4.625	1.212	32.135	13.516	.000
468.0	639696.2	24086.6	-1.178	63.130	-4.600	1.226	32.263	13.520	.000
469.0	639217.2	24087.2	-1.179	63.146	-4.589	1.239	32.380	13.524	.000
470.0	638738.0	24087.8	-1.179	63.162	-4.576	1.246	32.484	13.528	.000
471.0	638258.6	24088.4	-1.180	63.178	-4.567	1.254	32.587	13.533	.000
472.0	637778.9	24089.0	-1.180	63.194	-4.563	1.259	32.678	13.537	.000
473.0	637298.9	24089.6	-1.181	63.211	-4.547	1.273	32.766	13.541	.000
474.0	636818.8	24090.2	-1.182	63.227	-4.540	1.279	32.859	13.545	.000
475.0	636338.4	24090.8	-1.182	63.243	-4.534	1.286	32.947	13.550	.000
476.0	635857.7	24091.4	-1.183	63.260	-4.522	1.301	33.021	13.554	.000
477.0	635376.9	24092.0	-1.183	63.276	-4.516	1.307	33.093	13.558	.000
478.0	634895.7	24092.6	-1.184	63.292	-4.512	1.323	33.166	13.563	.000
479.0	634414.4	24093.2	-1.185	63.309	-4.507	1.328	33.239	13.567	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
480.0	633932.8	24093.8	-1.185	63.325	-4.507	1.335	33.316	13.571	.000
481.0	633450.8	24094.6	-1.186	63.342	-4.507	1.340	33.561	13.576	.000
482.0	632968.5	24095.2	-1.187	63.358	-4.597	1.146	34.093	13.580	.000
483.0	632485.9	24095.8	-1.188	63.374	-4.764	.602	34.611	13.585	.000
484.0	632003.1	24096.5	-1.188	63.391	-4.716	.093	35.172	13.589	.000
485.0	631520.1	24097.1	-1.189	63.408	-4.508	-.247	35.744	13.594	.000
486.0	631036.8	24097.7	-1.189	63.425	-4.224	-.312	36.319	13.598	.000
487.0	630553.4	24098.3	-1.190	63.442	-3.850	-.128	36.895	13.602	.000
488.0	630069.7	24098.9	-1.190	63.458	-3.489	.071	37.474	13.607	.000
489.0	629585.7	24099.5	-1.191	63.475	-3.179	.138	38.025	13.611	.000
490.0	629101.7	24100.1	-1.191	63.492	-2.964	-.131	38.340	13.616	.000
491.0	628617.6	24100.6	-1.191	63.509	-2.785	-.543	38.315	13.620	.000
492.0	628133.4	24101.2	-1.192	63.526	-2.547	-.761	38.195	13.625	.000
493.0	627648.9	24101.8	-1.192	63.543	-2.206	-.621	38.094	13.629	.000
494.0	627164.2	24102.5	-1.193	63.560	-1.841	-.401	37.990	13.634	.000
495.0	626679.2	24103.1	-1.193	63.577	-1.431	-.148	37.896	13.639	.000
496.0	626194.1	24103.7	-1.194	63.594	-1.024	.104	37.801	13.643	.000
497.0	625708.7	24104.3	-1.195	63.611	-.613	.354	37.711	13.648	.000
498.0	625223.0	24104.9	-1.195	63.628	-.485	.336	37.654	13.652	.000
499.0	624737.2	24105.5	-1.196	63.645	-.585	-.060	37.614	13.657	.000
500.0	624251.1	24106.1	-1.196	63.662	-.716	-.669	37.571	13.662	.000
501.0	623764.7	24106.7	-1.197	63.680	-.745	-.920	37.524	13.666	.000
502.0	623278.2	24107.5	-1.198	63.697	-.711	-.974	37.523	13.671	.000
503.0	622791.3	24108.1	-1.198	63.715	-.684	-1.034	37.755	13.676	.000
504.0	622304.2	24108.7	-1.199	63.732	-.649	-1.095	37.908	13.681	.000
505.0	621816.9	24109.3	-1.199	63.750	-.621	-1.158	38.079	13.685	.000
506.0	621329.4	24109.9	-1.200	63.767	-.596	-1.224	38.241	13.690	.000
507.0	620841.7	24110.5	-1.200	63.785	-.574	-1.288	38.411	13.695	.000
508.0	620353.8	24111.1	-1.201	63.802	-.547	-1.354	38.586	13.700	.000
509.0	619865.6	24111.7	-1.201	63.820	-.525	-1.418	38.759	13.704	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
510.0	619377.2	24112.4	-1.202	63.837	-.499	-1.485	38.933	13.709	.000
511.0	618888.6	24113.0	-1.202	63.855	-.476	-1.552	39.108	13.714	.000
512.0	618399.8	24113.6	-1.203	63.873	-.456	-1.619	39.292	13.719	.000
513.0	617910.7	24114.2	-1.204	63.890	-.438	-1.684	39.472	13.724	.000
514.0	617421.4	24114.8	-1.204	63.908	-.416	-1.750	39.653	13.728	.000
515.0	616931.9	24115.4	-1.205	63.926	-.398	-1.815	39.838	13.733	.000
516.0	616442.2	24116.0	-1.205	63.944	-.377	-1.877	40.021	13.738	.000
517.0	615952.3	24116.7	-1.206	63.962	-.354	-1.941	40.217	13.743	.000
518.0	615462.3	24117.2	-1.206	63.979	-.329	-2.001	40.199	13.748	.000
519.0	614972.2	24117.8	-1.206	63.997	-.302	-2.061	39.902	13.753	.000
520.0	614482.0	24118.4	-1.206	64.015	-.268	-2.109	39.565	13.758	.000
521.0	613991.5	24119.1	-1.207	64.033	-.237	-2.164	39.233	13.763	.000
522.0	613500.8	24119.7	-1.208	64.052	-.204	-2.214	38.904	13.768	.000
523.0	613009.9	24120.3	-1.208	64.070	-.172	-2.263	38.583	13.773	.000
524.0	612518.8	24120.9	-1.209	64.088	-.146	-2.321	38.262	13.778	.000
525.0	612027.4	24121.5	-1.209	64.106	-.122	-2.375	37.934	13.783	.000
526.0	611535.9	24122.1	-1.210	64.124	-.096	-2.426	37.617	13.788	.000
527.0	611044.1	24122.8	-1.210	64.142	-.071	-2.485	37.298	13.793	.000
528.0	610552.1	24123.4	-1.211	64.161	-.048	-2.537	36.985	13.798	.000
529.0	610059.9	24124.0	-1.211	64.179	-.032	-2.594	36.670	13.803	.000
530.0	609567.6	24124.6	-1.212	64.197	-.001	-2.647	36.354	13.809	.000
531.0	609075.0	24125.3	-1.212	64.216	.025	-2.696	36.082	13.814	.000
532.0	608582.0	24125.9	-1.213	64.234	.018	-2.764	36.006	13.819	.000
533.0	608088.8	24126.6	-1.214	64.253	.265	-2.637	36.073	13.824	.000
534.0	607595.4	24127.3	-1.214	64.271	.581	-2.454	36.187	13.829	.000
535.0	607101.8	24127.9	-1.215	64.290	.621	-2.495	36.319	13.835	.000
536.0	606608.0	24128.5	-1.215	64.309	.703	-2.446	36.443	13.840	.000
537.0	606114.1	24129.1	-1.216	64.327	.840	-2.241	36.574	13.845	.000
538.0	605619.9	24129.8	-1.216	64.346	.978	-2.014	36.706	13.850	.000
539.0	605125.5	24130.4	-1.217	64.365	1.147	-1.683	36.843	13.856	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
540.0	604630.8	24131.0	-1.217	64.383	1.292	-1.417	36.972	13.861	.000
541.0	604136.0	24131.6	-1.217	64.402	1.403	-1.247	37.099	13.866	.000
542.0	603641.0	24132.2	-1.218	64.421	1.517	-1.073	37.237	13.872	.000
543.0	603145.8	24132.9	-1.218	64.440	1.614	-.903	37.368	13.877	.000
544.0	602650.4	24133.5	-1.219	64.459	1.728	-.726	37.505	13.883	.000
545.0	602154.8	24134.1	-1.219	64.478	1.838	-.545	37.640	13.888	.000
546.0	601659.0	24134.7	-1.220	64.497	1.940	-.367	37.776	13.893	.000
547.0	601163.0	24135.3	-1.220	64.516	2.046	-.187	37.919	13.899	.000
548.0	600666.8	24136.0	-1.221	64.535	2.156	-.004	38.064	13.904	.000
549.0	600170.4	24136.6	-1.221	64.554	2.257	.172	38.203	13.910	.000
550.0	599673.8	24137.2	-1.222	64.573	2.358	.350	38.348	13.915	.000
551.0	599177.0	24137.8	-1.222	64.592	2.452	.526	38.492	13.921	.000
552.0	598680.0	24138.5	-1.223	64.611	2.489	.649	38.652	13.926	.000
553.0	598182.9	24139.1	-1.223	64.631	2.490	.749	38.813	13.932	.000
554.0	597685.5	24139.7	-1.224	64.650	2.472	.831	38.981	13.938	.000
555.0	597187.9	24140.4	-1.224	64.669	2.429	.886	39.159	13.943	.000
556.0	596690.1	24141.0	-1.225	64.689	2.369	.934	39.339	13.949	.000
557.0	596192.2	24141.6	-1.225	64.708	2.307	.980	39.520	13.954	.000
558.0	595694.0	24142.2	-1.225	64.727	2.244	1.024	39.701	13.960	.000
559.0	595195.7	24142.8	-1.226	64.747	2.185	1.074	39.884	13.966	.000
560.0	594697.2	24143.5	-1.226	64.766	2.123	1.112	40.074	13.971	.000
561.0	594198.5	24144.1	-1.227	64.786	2.076	1.172	40.264	13.977	.000
562.0	593699.6	24144.7	-1.227	64.805	1.876	1.098	40.469	13.983	.000
563.0	593200.5	24145.4	-1.228	64.825	1.480	.823	40.714	13.989	.000
564.0	592701.2	24146.0	-1.228	64.845	1.053	.519	40.962	13.995	.000
565.0	592201.7	24146.6	-1.229	64.864	.630	.219	41.209	14.000	.000
566.0	591702.1	24147.3	-1.229	64.884	.217	-.089	41.457	14.006	.000
567.0	591202.2	24147.9	-1.230	64.904	-.128	-.329	41.714	14.012	.000
568.0	590702.2	24148.6	-1.230	64.924	-.211	-.312	42.012	14.018	.000
569.0	590202.0	24149.2	-1.230	64.943	-.270	-.271	42.275	14.024	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
570.0	589701.8	24149.8	-1.230	64.963	-.328	-.230	42.221	14.030	.000
571.0	589201.5	24150.4	-1.230	64.983	-.375	-.175	41.925	14.036	.000
572.0	588701.1	24151.0	-1.231	65.003	-.427	-.120	41.567	14.042	.000
573.0	588200.6	24151.6	-1.231	65.023	-.479	-.066	41.221	14.048	.000
574.0	587699.8	24152.2	-1.232	65.043	-.524	-.013	40.871	14.054	.000
575.0	587198.9	24152.9	-1.232	65.063	-.577	.040	40.529	14.060	.000
576.0	586697.8	24153.5	-1.233	65.083	-.629	.091	40.182	14.066	.000
577.0	586196.5	24154.1	-1.233	65.104	-.684	.145	39.845	14.072	.000
578.0	585695.0	24154.8	-1.233	65.124	-.740	.197	39.505	14.078	.000
579.0	585193.4	24155.4	-1.234	65.144	-.791	.250	39.167	14.084	.000
580.0	584691.6	24156.0	-1.234	65.164	-.837	.301	38.838	14.090	.000
581.0	584189.6	24156.6	-1.235	65.185	-.899	.351	38.502	14.096	.000
582.0	583687.4	24157.3	-1.235	65.205	-.957	.397	38.177	14.102	.000
583.0	583185.1	24157.9	-1.235	65.225	-1.012	.455	37.835	14.109	.000
584.0	582682.4	24158.7	-1.236	65.246	-1.078	.505	37.699	14.115	.000
585.0	582179.5	24159.3	-1.237	65.266	-1.149	.522	37.748	14.121	.000
586.0	581676.5	24160.0	-1.237	65.286	-1.339	.224	37.788	14.127	.000
587.0	581173.2	24160.6	-1.238	65.306	-1.423	-.255	37.850	14.134	.000
588.0	580669.8	24161.3	-1.238	65.327	-1.168	-.276	37.950	14.140	.000
589.0	580166.3	24161.9	-1.238	65.348	-.826	-.079	38.053	14.146	.000
590.0	579662.6	24162.5	-1.239	65.369	-.497	.106	38.153	14.153	.000
591.0	579158.7	24163.1	-1.239	65.389	-.173	.291	38.258	14.159	.000
592.0	578654.6	24163.8	-1.240	65.410	.144	.475	38.361	14.166	.000
593.0	578150.4	24164.4	-1.240	65.431	.474	.667	38.470	14.172	.000
594.0	577646.0	24165.1	-1.240	65.452	.799	.852	38.577	14.178	.000
595.0	577141.4	24165.7	-1.241	65.472	1.115	1.039	38.683	14.185	.000
596.0	576636.7	24166.3	-1.241	65.493	1.428	1.236	38.791	14.191	.000
597.0	576131.8	24167.0	-1.241	65.514	1.752	1.427	38.904	14.198	.000
598.0	575626.7	24167.6	-1.242	65.535	2.068	1.618	39.015	14.205	.000
599.0	575121.5	24168.2	-1.242	65.556	2.386	1.816	39.125	14.211	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
600.0	574616.1	24168.9	-1.243	65.577	2.651	1.965	39.256	14.218	.000
601.0	574110.5	24169.5	-1.243	65.598	2.689	1.916	39.416	14.224	.000
602.0	573604.8	24170.2	-1.243	65.619	2.741	1.876	39.580	14.231	.000
603.0	573098.9	24170.8	-1.244	65.640	2.781	1.839	39.741	14.238	.000
604.0	572592.8	24171.4	-1.244	65.661	2.829	1.796	39.907	14.245	.000
605.0	572086.6	24172.1	-1.245	65.683	2.874	1.752	40.080	14.251	.000
606.0	571580.2	24172.7	-1.245	65.704	2.906	1.703	40.247	14.258	.000
607.0	571073.7	24173.4	-1.245	65.725	2.957	1.672	40.423	14.265	.000
608.0	570567.0	24174.0	-1.246	65.746	2.955	1.583	40.603	14.272	.000
609.0	570060.1	24174.7	-1.246	65.768	2.870	1.419	40.838	14.279	.000
610.0	569553.1	24175.3	-1.246	65.789	2.879	1.352	41.118	14.285	.000
611.0	569045.9	24176.0	-1.247	65.811	2.932	1.320	41.390	14.292	.000
612.0	568538.7	24176.6	-1.247	65.832	2.974	1.283	41.454	14.299	.000
613.0	568031.6	24177.2	-1.247	65.854	3.037	1.257	41.185	14.306	.000
614.0	567524.3	24177.8	-1.247	65.875	3.091	1.242	40.825	14.313	.000
615.0	567016.9	24178.4	-1.247	65.897	3.150	1.218	40.481	14.320	.000
616.0	566509.3	24179.1	-1.248	65.918	3.206	1.197	40.134	14.327	.000
617.0	566001.4	24179.9	-1.248	65.940	3.259	1.172	40.076	14.334	.000
618.0	565493.3	24180.5	-1.249	65.962	3.314	1.142	40.109	14.341	.000
619.0	564985.2	24181.1	-1.249	65.984	3.363	1.111	40.136	14.349	.000
620.0	564476.8	24181.8	-1.249	66.005	3.404	1.081	40.160	14.356	.000
621.0	563968.3	24182.4	-1.250	66.027	3.458	1.051	40.194	14.363	.000
622.0	563459.7	24183.0	-1.250	66.049	3.503	1.022	40.225	14.370	.000
623.0	562950.9	24183.7	-1.250	66.071	3.546	.987	40.259	14.377	.000
624.0	562442.0	24184.3	-1.251	66.093	3.579	.958	40.295	14.385	.000
625.0	561932.9	24185.0	-1.251	66.115	3.627	.919	40.335	14.392	.000
626.0	561423.6	24185.6	-1.251	66.137	3.674	.887	40.373	14.399	.000
627.0	560914.2	24186.2	-1.252	66.159	3.724	.875	40.417	14.407	.000
628.0	560404.7	24186.9	-1.252	66.181	3.714	.768	40.462	14.414	.000
629.0	559895.0	24187.6	-1.252	66.203	3.571	.511	40.529	14.421	.000

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
630.0	559385.2	24188.2	-1.253	66.225	3.264	.423	40.625	14.429	.000
631.0	558875.2	24188.9	-1.253	66.248	2.711	.353	40.767	14.436	.000
632.0	558365.0	24189.5	-1.253	66.270	2.087	.180	40.928	14.444	.000
633.0	557854.7	24190.1	-1.254	66.292	1.472	.018	41.073	14.451	.000
634.0	557344.4	24190.8	-1.254	66.314	.861	-.148	41.179	14.459	.000
635.0	556833.9	24191.4	-1.254	66.337	.289	-.289	41.240	14.466	.000
636.0	556323.2	24192.1	-1.255	66.359	-.092	-.322	41.288	14.474	.000
637.0	555812.5	24192.7	-1.255	66.381	-.401	-.312	41.288	14.482	.000
638.0	555301.6	24193.4	-1.255	66.404	-.709	-.286	41.274	14.489	.000
639.0	554790.6	24194.0	-1.255	66.426	-1.051	-.328	41.240	14.497	.000
640.0	554279.5	24194.7	-1.256	66.449	-1.273	-.325	41.199	14.505	.000
641.0	553768.3	24195.3	-1.256	66.471	-1.476	-.354	41.150	14.513	.000
642.0	553256.9	24196.0	-1.256	66.494	-1.562	-.347	41.119	14.521	.000
643.0	552745.4	24196.6	-1.256	66.516	-1.570	-.301	41.093	14.528	.000
644.0	552233.7	24197.2	-1.257	66.539	-1.586	-.242	41.051	14.536	.000
645.0	551722.0	24197.9	-1.257	66.562	-1.602	-.190	40.997	14.544	.000
646.0	551210.0	24198.5	-1.257	66.584	-1.659	-.271	40.941	14.552	.000
647.0	550698.0	24199.2	-1.258	66.607	-1.708	-.397	40.900	14.560	.000
648.0	550185.8	24199.8	-1.258	66.630	-1.592	-.362	40.863	14.568	.000
649.0	549673.5	24200.5	-1.258	66.653	-1.441	-.290	40.840	14.576	.000
650.0	549161.0	24201.1	-1.259	66.676	-1.288	-.222	40.816	14.584	.000
651.0	548648.5	24201.8	-1.259	66.699	-1.142	-.156	40.791	14.592	.000
652.0	548135.8	24202.4	-1.259	66.722	-1.000	-.089	40.768	14.600	.000
653.0	547622.9	24203.1	-1.259	66.745	-.857	-.021	40.746	14.609	.000
654.0	547110.0	24203.7	-1.260	66.768	-.710	.043	40.736	14.617	.000
655.0	546596.9	24204.3	-1.260	66.791	-.562	.119	40.720	14.625	.000
656.0	546083.6	24205.0	-1.260	66.814	-.422	.189	40.704	14.633	.000
657.0	545570.3	24205.6	-1.261	66.837	-.283	.254	40.694	14.642	.000
658.0	545056.8	24206.3	-1.261	66.860	-.137	.323	40.678	14.650	.001
659.0	544543.2	24206.9	-1.261	66.884	.001	.378	40.671	14.658	.001



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
660.0	544029.5	24207.6	-1.261	66.907	.143	.454	40.671	14.667	.001
661.0	543515.7	24208.2	-1.262	66.930	.151	.394	40.683	14.675	.001
662.0	543001.7	24208.9	-1.262	66.953	.120	.306	40.698	14.684	.001
663.0	542487.6	24209.5	-1.262	66.977	.100	.229	40.720	14.692	.001
664.0	541973.4	24210.2	-1.262	67.000	.073	.139	40.746	14.701	.001
665.0	541459.1	24210.8	-1.263	67.024	.059	.053	40.772	14.710	.001
666.0	540944.6	24211.5	-1.263	67.047	.035	-.031	40.796	14.718	.001
667.0	540430.0	24212.1	-1.263	67.071	.006	-.115	40.824	14.727	.001
668.0	539915.3	24212.8	-1.264	67.094	-.020	-.196	40.858	14.736	.001
669.0	539400.5	24213.4	-1.264	67.118	-.056	-.281	40.891	14.744	.001
670.0	538885.6	24214.0	-1.264	67.142	-.072	-.354	40.923	14.753	.001
671.0	538370.5	24214.7	-1.264	67.165	-.073	-.347	40.919	14.762	.001
672.0	537855.4	24215.4	-1.264	67.189	-.067	-.291	40.896	14.771	.001
673.0	537340.1	24216.0	-1.265	67.213	-.053	-.243	40.877	14.780	.001
674.0	536824.7	24216.6	-1.265	67.237	-.052	-.193	40.859	14.789	.001
675.0	536309.3	24217.3	-1.265	67.260	-.045	-.139	40.848	14.798	.001
676.0	535793.7	24217.9	-1.265	67.284	-.035	-.091	40.833	14.807	.001
677.0	535278.0	24218.6	-1.266	67.308	-.033	-.040	40.818	14.816	.001
678.0	534762.1	24219.2	-1.266	67.332	-.027	.014	40.811	14.825	.001
679.0	534246.2	24219.9	-1.266	67.356	-.027	.068	40.805	14.834	.001
680.0	533730.1	24220.5	-1.266	67.380	-.024	.116	40.803	14.843	.001
681.0	533214.0	24221.2	-1.267	67.404	-.025	.161	40.795	14.852	.001
682.0	532697.7	24221.8	-1.267	67.428	-.023	.212	40.791	14.862	.001
683.0	532181.3	24222.5	-1.267	67.453	-.024	.261	40.798	14.871	.001
684.0	531664.8	24223.1	-1.267	67.477	-.018	.320	40.802	14.880	.001
685.0	531148.2	24223.8	-1.268	67.501	-.044	.288	40.804	14.890	.001
686.0	530631.5	24224.4	-1.268	67.525	-.074	.209	40.805	14.899	.001
687.0	530114.7	24225.1	-1.268	67.549	-.120	.117	40.813	14.909	.001
688.0	529597.8	24225.7	-1.268	67.574	-.152	.041	40.831	14.918	.001
689.0	529080.8	24226.4	-1.268	67.598	-.195	-.048	40.840	14.928	.001

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
690.0	528563.6	24227.0	-1.269	67.622	-.231	-.132	40.849	14.937	.001
691.0	528046.4	24227.7	-1.269	67.647	-.262	-.212	40.867	14.947	.001
692.0	527529.0	24228.3	-1.269	67.671	-.302	-.304	40.889	14.957	.001
693.0	527011.6	24229.0	-1.269	67.696	-.342	-.381	40.902	14.966	.001
694.0	526494.1	24229.6	-1.269	67.720	-.353	-.354	40.909	14.976	.001
695.0	525976.4	24230.3	-1.270	67.745	-.365	-.304	40.867	14.986	.001
696.0	525458.7	24230.9	-1.270	67.770	-.365	-.251	40.836	14.996	.001
697.0	524940.9	24231.6	-1.270	67.794	-.376	-.201	40.802	15.006	.001
698.0	524423.0	24232.2	-1.270	67.819	-.393	-.152	40.775	15.016	.001
699.0	523905.0	24232.9	-1.270	67.844	-.399	-.106	40.747	15.026	.001
700.0	523386.8	24233.6	-1.271	67.869	-.409	-.060	40.718	15.036	.001
701.0	522868.6	24234.2	-1.271	67.893	-.421	-.008	40.698	15.046	.001
702.0	522350.3	24234.8	-1.271	67.918	-.432	.037	40.673	15.056	.001
703.0	521831.9	24235.5	-1.271	67.943	-.446	.079	40.653	15.066	.001
704.0	521313.4	24236.1	-1.271	67.968	-.464	.126	40.638	15.076	.001
705.0	520794.8	24236.8	-1.272	67.993	-.480	.168	40.619	15.087	.001
706.0	520276.1	24237.5	-1.272	68.018	-.497	.215	40.603	15.097	.001
707.0	519757.3	24238.1	-1.272	68.043	-.512	.258	40.600	15.107	.001
708.0	519238.4	24238.7	-1.272	68.068	-.541	.312	40.588	15.118	.001
709.0	518719.4	24239.4	-1.272	68.093	-.571	.273	40.577	15.128	.001
710.0	518200.3	24240.1	-1.273	68.118	-.642	.115	40.569	15.139	.001
711.0	517681.2	24240.7	-1.273	68.143	-.709	-.039	40.562	15.149	.001
712.0	517161.9	24241.4	-1.273	68.169	-.780	-.197	40.556	15.160	.001
713.0	516642.6	24242.0	-1.273	68.194	-.771	-.279	40.561	15.171	.001
714.0	516123.2	24242.7	-1.273	68.219	-.695	-.300	40.570	15.181	.001
715.0	515603.6	24243.3	-1.273	68.245	-.595	-.296	40.587	15.192	.001
716.0	515084.0	24244.0	-1.274	68.270	-.501	-.292	40.608	15.203	.001
717.0	514564.3	24244.7	-1.274	68.295	-.410	-.297	40.621	15.214	.001
718.0	514044.6	24245.3	-1.274	68.321	-.321	-.304	40.647	15.225	.001
719.0	513524.7	24246.0	-1.274	68.346	-.232	-.307	40.666	15.236	.001

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
720.0	513004.8	24246.6	-1.274	68.372	-.144	-.309	40.698	15.247	.001
721.0	512484.7	24247.3	-1.274	68.397	-.057	-.306	40.723	15.258	.001
722.0	511964.6	24247.9	-1.275	68.423	.025	-.314	40.749	15.269	.001
723.0	511444.4	24248.6	-1.275	68.448	.110	-.315	40.779	15.280	.001
724.0	510924.1	24249.2	-1.275	68.474	.198	-.327	40.814	15.291	.001
725.0	510403.7	24249.9	-1.275	68.500	.287	-.302	40.850	15.303	.001
726.0	509883.3	24250.6	-1.275	68.526	.393	-.193	40.891	15.314	.001
727.0	509362.7	24251.2	-1.275	68.551	.515	-.056	40.906	15.325	.001
728.0	508842.2	24251.9	-1.275	68.577	.625	.073	40.890	15.337	.001
729.0	508321.5	24252.5	-1.276	68.603	.751	.211	40.871	15.348	.001
730.0	507800.8	24253.2	-1.276	68.629	.789	.274	40.860	15.360	.001
731.0	507279.9	24253.8	-1.276	68.655	.787	.301	40.856	15.372	.001
732.0	506759.1	24254.5	-1.276	68.681	.794	.334	40.856	15.383	.001
733.0	506238.1	24255.1	-1.276	68.707	.797	.364	40.859	15.395	.001
734.0	505717.0	24255.8	-1.276	68.733	.801	.396	40.860	15.407	.001
735.0	505195.9	24256.5	-1.276	68.759	.809	.426	40.870	15.419	.001
736.0	504674.7	24257.1	-1.277	68.785	.814	.457	40.879	15.431	.001
737.0	504153.4	24257.8	-1.277	68.811	.749	.417	40.893	15.443	.001
738.0	503632.1	24258.4	-1.277	68.837	.596	.308	40.878	15.455	.001
739.0	503110.7	24259.1	-1.277	68.864	.423	.179	40.847	15.467	.001
740.0	502589.2	24259.7	-1.277	68.890	.277	.062	40.821	15.479	.001
741.0	502067.7	24260.4	-1.277	68.916	.114	-.060	40.799	15.491	.001
742.0	501546.1	24261.1	-1.277	68.942	-.044	-.179	40.777	15.503	.001
743.0	501024.4	24261.7	-1.277	68.969	-.196	-.295	40.762	15.516	.001
744.0	500502.7	24262.4	-1.277	68.995	-.298	-.356	40.750	15.528	.001
745.0	499980.9	24263.0	-1.278	69.022	-.349	-.377	40.744	15.541	.001
746.0	499459.0	24263.7	-1.278	69.048	-.401	-.392	40.742	15.553	.001
747.0	498937.1	24264.3	-1.278	69.075	-.456	-.407	40.740	15.566	.001
748.0	498415.1	24265.0	-1.278	69.101	-.512	-.426	40.741	15.578	.001
749.0	497893.0	24265.7	-1.278	69.128	-.581	-.451	40.746	15.591	.001

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
750.0	497370.8	24266.3	-1.278	69.154	-.593	-.433	40.752	15.604	.001
751.0	496848.6	24267.0	-1.278	69.181	-.546	-.347	40.770	15.617	.001
752.0	496326.3	24267.6	-1.278	69.208	-.494	-.268	40.790	15.630	.001
753.0	495804.0	24268.3	-1.278	69.235	-.449	-.184	40.807	15.643	.001
754.0	495281.6	24269.0	-1.278	69.261	-.404	-.107	40.829	15.656	.001
755.0	494759.1	24269.6	-1.279	69.288	-.360	-.027	40.860	15.669	.001
756.0	494236.6	24270.3	-1.279	69.315	-.316	.055	40.883	15.682	.001
757.0	493714.0	24270.9	-1.279	69.342	-.277	.133	40.911	15.695	.001
758.0	493191.4	24271.6	-1.279	69.369	-.237	.210	40.904	15.708	.001
759.0	492668.7	24272.2	-1.279	69.396	-.187	.302	40.881	15.722	.001
760.0	492146.0	24272.9	-1.279	69.423	-.169	.303	40.852	15.735	.001
761.0	491623.2	24273.6	-1.279	69.450	-.155	.253	40.832	15.749	.001
762.0	491100.3	24274.2	-1.279	69.477	-.147	.198	40.811	15.762	.001
763.0	490577.4	24274.9	-1.279	69.504	-.139	.147	40.791	15.776	.001
764.0	490054.5	24275.5	-1.279	69.531	-.126	.099	40.776	15.790	.001
765.0	489531.5	24276.2	-1.279	69.558	-.122	.043	40.757	15.804	.001
766.0	489008.4	24276.8	-1.279	69.585	-.118	-.008	40.747	15.817	.001
767.0	488485.3	24277.5	-1.279	69.613	-.108	-.069	40.734	15.831	.001
768.0	487962.1	24278.2	-1.280	69.640	-.107	-.117	40.730	15.845	.001
769.0	487438.9	24278.8	-1.280	69.667	-.103	-.172	40.721	15.860	.001
770.0	486915.6	24279.5	-1.280	69.694	-.101	-.224	40.713	15.874	.001
771.0	486392.3	24280.2	-1.280	69.722	-.095	-.272	40.714	15.888	.001
772.0	485868.9	24280.8	-1.280	69.749	-.088	-.325	40.713	15.902	.001
773.0	485345.5	24281.5	-1.280	69.777	-.089	-.365	40.712	15.917	.001
774.0	484822.0	24282.1	-1.280	69.804	-.062	-.319	40.723	15.931	.001
775.0	484298.5	24282.8	-1.280	69.832	-.030	-.235	40.723	15.946	.001
776.0	483774.9	24283.5	-1.280	69.859	-.003	-.156	40.728	15.960	.001
777.0	483251.3	24284.1	-1.280	69.887	.029	-.077	40.733	15.975	.001
778.0	482727.6	24284.8	-1.280	69.915	.062	-.003	40.741	15.990	.001
779.0	482203.9	24285.4	-1.280	69.942	.087	.070	40.755	16.005	.001

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
780.0	481680.1	24286.1	-1.280	69.970	.118	.150	40.770	16.020	.001
781.0	481156.3	24286.8	-1.280	69.998	.133	.219	40.782	16.035	.001
782.0	480632.5	24287.4	-1.280	70.026	.160	.304	40.801	16.050	.001
783.0	480108.6	24288.1	-1.280	70.053	.165	.297	40.816	16.065	.002
784.0	479584.7	24288.7	-1.280	70.081	.157	.241	40.840	16.080	.002
785.0	479060.7	24289.4	-1.280	70.109	.147	.183	40.858	16.096	.002
786.0	478536.7	24290.0	-1.281	70.137	.138	.128	40.878	16.111	.002
787.0	478012.7	24290.7	-1.281	70.165	.129	.072	40.906	16.127	.002
788.0	477488.6	24291.4	-1.281	70.193	.116	.011	40.938	16.142	.002
789.0	476964.5	24292.0	-1.281	70.221	.096	-.049	40.961	16.158	.002
790.0	476440.3	24292.7	-1.281	70.249	.090	-.108	40.990	16.174	.002
791.0	475916.1	24293.3	-1.281	70.277	.082	-.161	40.954	16.190	.002
792.0	475391.9	24294.0	-1.281	70.305	.077	-.213	40.894	16.206	.002
793.0	474867.7	24294.6	-1.281	70.334	.062	-.268	40.843	16.222	.002
794.0	474343.4	24295.3	-1.281	70.362	.047	-.328	40.794	16.238	.002
795.0	473819.1	24296.0	-1.281	70.390	.042	-.373	40.745	16.254	.002
796.0	473294.8	24296.6	-1.281	70.418	.036	-.377	40.697	16.271	.002
797.0	472770.4	24297.3	-1.281	70.447	.036	-.372	40.649	16.287	.002
798.0	472246.0	24298.0	-1.281	70.475	.036	-.367	40.606	16.304	.002
799.0	471721.6	24298.6	-1.281	70.504	.043	-.360	40.565	16.320	.002
800.0	471197.1	24299.3	-1.281	70.532	.042	-.349	40.531	16.337	.002
801.0	470672.6	24299.9	-1.281	70.560	.038	-.345	40.490	16.354	.002
802.0	470148.1	24300.6	-1.281	70.589	.039	-.339	40.454	16.371	.002
803.0	469623.5	24301.3	-1.281	70.617	.033	-.335	40.422	16.388	.002
804.0	469099.0	24301.9	-1.281	70.646	.029	-.327	40.394	16.405	.002
805.0	468574.3	24302.6	-1.281	70.675	.024	-.325	40.364	16.422	.002
806.0	468049.7	24303.2	-1.281	70.703	.020	-.316	40.335	16.439	.002
807.0	467525.0	24303.9	-1.281	70.732	.021	-.313	40.305	16.457	.002
808.0	467000.3	24304.6	-1.281	70.761	.004	-.313	40.284	16.474	.002
809.0	466475.6	24305.2	-1.281	70.790	-.004	-.311	40.258	16.492	.002

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
810.0	465950.9	24305.9	-1.281	70.818	-.011	-.301	40.240	16.510	.002
811.0	465426.1	24306.5	-1.281	70.847	-.024	-.292	40.224	16.527	.002
812.0	464901.3	24307.2	-1.281	70.876	-.038	-.295	40.206	16.545	.002
813.0	464376.5	24307.9	-1.281	70.905	-.040	-.292	40.195	16.563	.002
814.0	463851.7	24308.6	-1.281	70.934	-.052	-.289	40.181	16.582	.002
815.0	463326.8	24309.2	-1.281	70.963	-.076	-.286	40.170	16.600	.002
816.0	462801.9	24309.9	-1.281	70.992	-.082	-.284	40.166	16.618	.002
817.0	462277.0	24310.5	-1.281	71.021	-.101	-.283	40.156	16.637	.002
818.0	461752.1	24311.2	-1.281	71.050	-.111	-.281	40.152	16.655	.002
819.0	461227.2	24311.9	-1.281	71.079	-.127	-.271	40.145	16.674	.002
820.0	460702.2	24312.5	-1.281	71.108	-.150	-.273	40.146	16.693	.002
821.0	460177.2	24313.2	-1.281	71.137	-.169	-.272	40.153	16.712	.002
822.0	459652.3	24313.8	-1.281	71.167	-.179	-.273	40.157	16.731	.002
823.0	459127.3	24314.5	-1.281	71.196	-.204	-.271	40.164	16.750	.002
824.0	458602.2	24315.2	-1.281	71.225	-.228	-.269	40.175	16.769	.002
825.0	458077.2	24315.8	-1.281	71.255	-.248	-.275	40.179	16.788	.002
826.0	457552.2	24316.5	-1.281	71.284	-.273	-.275	40.192	16.808	.002
827.0	457027.1	24317.1	-1.280	71.313	-.290	-.268	40.210	16.828	.002
828.0	456502.0	24317.8	-1.280	71.343	-.315	-.270	40.221	16.847	.002
829.0	455977.0	24318.5	-1.280	71.372	-.341	-.268	40.241	16.867	.002
830.0	455451.9	24319.1	-1.280	71.402	-.370	-.270	40.259	16.887	.003
831.0	454926.8	24319.8	-1.280	71.431	-.395	-.270	40.282	16.907	.003
832.0	454401.7	24320.5	-1.280	71.461	-.425	-.276	40.308	16.928	.003
833.0	453876.5	24321.1	-1.280	71.490	-.445	-.272	40.331	16.948	.003
834.0	453351.4	24321.8	-1.280	71.520	-.474	-.273	40.356	16.968	.003
835.0	452826.3	24322.4	-1.280	71.550	-.509	-.282	40.387	16.989	.003
836.0	452301.1	24323.1	-1.280	71.579	-.539	-.288	40.420	17.010	.003
837.0	451776.0	24323.8	-1.280	71.609	-.566	-.287	40.451	17.031	.003
838.0	451250.8	24324.4	-1.280	71.639	-.602	-.295	40.490	17.052	.003
839.0	450725.7	24325.1	-1.280	71.669	-.635	-.294	40.524	17.073	.003

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
840.0	450200.5	24325.7	-1.280	71.699	-.677	-.301	40.562	17.094	.003
841.0	449675.3	24326.4	-1.280	71.728	-.707	-.303	40.605	17.116	.003
842.0	449150.2	24327.1	-1.280	71.758	-.741	-.312	40.644	17.137	.003
843.0	448625.0	24327.7	-1.280	71.788	-.782	-.321	40.686	17.159	.003
844.0	448099.8	24328.4	-1.279	71.818	-.821	-.324	40.738	17.181	.003
845.0	447574.7	24329.0	-1.279	71.848	-.857	-.333	40.783	17.203	.003
846.0	447049.5	24329.7	-1.279	71.878	-.898	-.342	40.831	17.225	.003
847.0	446524.3	24330.4	-1.279	71.909	-.936	-.346	40.885	17.247	.003
848.0	445999.2	24331.0	-1.279	71.939	-.978	-.353	40.940	17.269	.003
849.0	445474.0	24331.7	-1.279	71.969	-1.026	-.365	40.991	17.292	.003
850.0	444948.8	24332.4	-1.279	71.999	-1.062	-.370	41.024	17.315	.003
851.0	444423.7	24333.0	-1.279	72.029	-1.105	-.380	41.051	17.338	.003
852.0	443898.6	24333.7	-1.279	72.060	-1.148	-.388	41.087	17.361	.003
853.0	443373.4	24334.4	-1.279	72.090	-1.192	-.396	41.101	17.384	.003
854.0	442848.3	24335.0	-1.279	72.120	-1.233	-.403	41.088	17.407	.003
855.0	442323.3	24335.7	-1.278	72.151	-1.283	-.408	41.050	17.430	.003
856.0	441798.2	24336.3	-1.278	72.181	-1.317	-.416	40.972	17.454	.004
857.0	441273.2	24337.0	-1.278	72.211	-1.359	-.411	40.894	17.478	.004
858.0	440748.2	24337.6	-1.278	72.242	-1.406	-.419	40.822	17.502	.004
859.0	440223.1	24338.3	-1.278	72.272	-1.452	-.431	40.755	17.526	.004
860.0	439698.1	24339.0	-1.278	72.303	-1.495	-.434	40.688	17.550	.004
861.0	439173.1	24339.6	-1.278	72.334	-1.542	-.436	40.612	17.575	.004
862.0	438648.1	24340.3	-1.278	72.364	-1.594	-.442	40.550	17.599	.004
863.0	438123.1	24341.0	-1.278	72.395	-1.632	-.447	40.486	17.624	.004
864.0	437598.2	24341.6	-1.278	72.425	-1.687	-.454	40.423	17.649	.004
865.0	437073.2	24342.3	-1.277	72.456	-1.736	-.464	40.366	17.674	.004
866.0	436548.3	24342.9	-1.277	72.487	-1.786	-.470	40.311	17.699	.004
867.0	436023.4	24343.6	-1.277	72.518	-1.838	-.473	40.255	17.725	.004
868.0	435498.5	24344.3	-1.277	72.549	-1.894	-.480	40.199	17.751	.004
869.0	434973.6	24344.9	-1.277	72.579	-1.943	-.491	40.143	17.776	.004

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
870.0	434448.7	24345.6	-1.277	72.610	-2.000	-.498	40.097	17.802	.004
871.0	433923.8	24346.2	-1.277	72.641	-2.056	-.508	40.051	17.829	.004
872.0	433399.0	24346.9	-1.277	72.672	-2.085	-.501	40.009	17.855	.004
873.0	432874.2	24347.6	-1.276	72.703	-2.059	-.427	39.970	17.882	.004
874.0	432349.4	24348.2	-1.276	72.734	-2.017	-.357	39.935	17.908	.004
875.0	431824.6	24348.9	-1.276	72.765	-1.956	-.378	39.905	17.935	.005
876.0	431299.8	24349.6	-1.276	72.796	-1.852	-.403	39.877	17.962	.005
877.0	430775.1	24350.2	-1.276	72.827	-1.740	-.409	39.862	17.990	.005
878.0	430250.4	24350.9	-1.276	72.858	-1.634	-.427	39.839	18.017	.005
879.0	429725.7	24351.5	-1.276	72.890	-1.537	-.441	39.822	18.045	.005
880.0	429201.0	24352.2	-1.276	72.921	-1.431	-.454	39.807	18.073	.005
881.0	428676.4	24352.9	-1.275	72.952	-1.231	-.370	39.804	18.101	.005
882.0	428151.7	24353.5	-1.275	72.983	-1.018	-.280	39.798	18.129	.005
883.0	427627.1	24354.2	-1.275	73.015	-.810	-.198	39.791	18.158	.005
884.0	427102.6	24354.9	-1.275	73.046	-.599	-.109	39.790	18.187	.005
885.0	426578.0	24355.6	-1.275	73.078	-.403	-.029	39.791	18.216	.005
886.0	426053.5	24356.2	-1.275	73.109	-.199	.061	39.800	18.245	.005
887.0	425529.0	24356.9	-1.275	73.140	.004	.140	39.802	18.274	.005
888.0	425004.6	24357.5	-1.274	73.172	.214	.231	39.809	18.304	.005
889.0	424480.2	24358.2	-1.274	73.203	.398	.304	39.822	18.334	.006
890.0	423955.8	24358.9	-1.274	73.235	.507	.304	39.842	18.364	.006
891.0	423431.5	24359.5	-1.274	73.267	.602	.286	39.867	18.394	.006
892.0	422907.1	24360.2	-1.274	73.298	.694	.276	39.898	18.425	.006
893.0	422382.8	24360.8	-1.274	73.330	.786	.261	39.930	18.456	.006
894.0	421858.6	24361.5	-1.273	73.362	.873	.249	39.959	18.487	.006
895.0	421334.4	24362.2	-1.273	73.393	.959	.233	39.991	18.518	.006
896.0	420810.2	24362.8	-1.273	73.425	1.044	.211	40.025	18.549	.006
897.0	420286.0	24363.5	-1.273	73.457	1.138	.204	40.067	18.581	.006
898.0	419761.9	24364.1	-1.273	73.489	1.226	.182	40.105	18.613	.006
899.0	419237.8	24364.8	-1.273	73.521	1.319	.215	40.143	18.645	.006



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HOGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
900.0	418713.7	24365.5	-1.272	73.553	1.406	.300	40.195	18.678	.007
901.0	418189.7	24366.1	-1.272	73.584	1.421	.326	40.249	18.711	.007
902.0	417665.8	24366.8	-1.272	73.616	1.429	.342	40.309	18.744	.007
903.0	417141.8	24367.4	-1.272	73.648	1.432	.358	40.368	18.777	.007
904.0	416617.9	24368.1	-1.272	73.680	1.433	.372	40.429	18.810	.007
905.0	416094.1	24368.8	-1.272	73.713	1.437	.391	40.494	18.844	.007
906.0	415570.3	24369.4	-1.271	73.745	1.443	.407	40.560	18.878	.007
907.0	415046.5	24370.1	-1.271	73.777	1.449	.422	40.626	18.913	.007
908.0	414522.8	24370.7	-1.271	73.809	1.448	.437	40.693	18.947	.007
909.0	413999.2	24371.4	-1.271	73.841	1.444	.452	40.759	18.982	.008
910.0	413475.5	24372.0	-1.271	73.873	1.453	.469	40.838	19.017	.008
911.0	412951.9	24372.7	-1.270	73.906	1.449	.487	40.910	19.053	.008
912.0	412428.4	24373.4	-1.270	73.938	1.443	.496	40.987	19.089	.008
913.0	411904.9	24374.1	-1.270	73.970	1.436	.508	41.068	19.125	.008
914.0	411381.5	24374.7	-1.270	74.002	1.378	.472	41.131	19.161	.008
915.0	410858.1	24375.4	-1.269	74.035	1.262	.383	41.129	19.198	.008
916.0	410334.8	24376.0	-1.269	74.067	1.165	.307	41.139	19.237	.009
917.0	409811.6	24376.6	-1.269	74.100	1.053	.220	41.140	19.278	.009
918.0	409288.4	24377.3	-1.269	74.132	.947	.140	41.124	19.320	.009
919.0	408765.3	24378.0	-1.269	74.165	.842	.058	41.092	19.363	.009
920.0	408242.2	24378.6	-1.268	74.197	.740	-.025	41.047	19.405	.009
921.0	407719.2	24379.3	-1.268	74.230	.634	-.100	41.001	19.448	.009
922.0	407196.2	24380.0	-1.268	74.262	.528	-.174	40.957	19.491	.009
923.0	406673.3	24380.6	-1.268	74.295	.419	-.260	40.920	19.534	.010
924.0	406150.5	24381.3	-1.267	74.328	.307	-.342	40.887	19.577	.010
925.0	405627.7	24381.9	-1.267	74.360	.197	-.429	40.849	19.621	.010
926.0	405105.0	24382.6	-1.267	74.393	.167	-.426	40.820	19.665	.010
927.0	404582.3	24383.3	-1.267	74.426	.216	-.356	40.799	19.709	.010
928.0	404059.7	24383.9	-1.267	74.459	.260	-.285	40.781	19.754	.011
929.0	403537.1	24384.6	-1.266	74.492	.312	-.210	40.765	19.798	.011

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
930.0	403014.6	24385.2	-1.266	74.525	.359	-.138	40.749	19.843	.011
931.0	402492.1	24385.9	-1.266	74.557	.401	-.069	40.738	19.888	.011
932.0	401969.8	24386.5	-1.266	74.590	.449	-.000	40.731	19.934	.011
933.0	401447.4	24387.2	-1.265	74.623	.492	.069	40.714	19.979	.012
934.0	400925.2	24387.9	-1.265	74.656	.531	.146	40.709	20.025	.012
935.0	400403.0	24388.5	-1.265	74.689	.577	.214	40.700	20.071	.012
936.0	399880.8	24389.2	-1.265	74.722	.611	.276	40.699	20.117	.012
937.0	399358.8	24389.8	-1.264	74.755	.651	.346	40.695	20.163	.013
938.0	398836.8	24390.5	-1.264	74.789	.681	.413	40.693	20.210	.013
939.0	398314.8	24391.2	-1.264	74.822	.633	.398	40.702	20.257	.013
940.0	397792.9	24391.8	-1.264	74.855	.498	.304	40.729	20.304	.013
941.0	397271.1	24392.5	-1.263	74.888	.376	.223	40.755	20.351	.014
942.0	396749.4	24393.1	-1.263	74.921	.244	.132	40.776	20.398	.014
943.0	396227.7	24393.8	-1.263	74.955	.118	.042	40.806	20.446	.014
944.0	395706.1	24394.5	-1.263	74.988	-.011	-.040	40.836	20.494	.014
945.0	395184.6	24395.1	-1.262	75.021	-.148	-.127	40.865	20.542	.015
946.0	394663.1	24395.8	-1.262	75.055	-.275	-.219	40.898	20.590	.015
947.0	394141.7	24396.4	-1.262	75.088	-.404	-.304	40.929	20.638	.015
948.0	393620.4	24397.1	-1.262	75.122	-.530	-.388	40.968	20.687	.016
949.0	393099.2	24397.7	-1.261	75.155	-.565	-.383	40.943	20.736	.016
950.0	392578.1	24398.4	-1.261	75.188	-.577	-.356	40.891	20.784	.016
951.0	392057.0	24399.0	-1.261	75.222	-.603	-.340	40.850	20.833	.016
952.0	391536.0	24399.7	-1.260	75.256	-.620	-.314	40.813	20.883	.017
953.0	391015.1	24400.3	-1.260	75.289	-.644	-.291	40.765	20.932	.017
954.0	390494.3	24401.0	-1.260	75.323	-.668	-.272	40.724	20.981	.018
955.0	389973.5	24401.7	-1.260	75.356	-.690	-.255	40.689	21.031	.018
956.0	389452.9	24402.3	-1.259	75.390	-.716	-.239	40.655	21.081	.018
957.0	388932.3	24403.0	-1.259	75.424	-.745	-.215	40.627	21.131	.019
958.0	388411.8	24403.6	-1.259	75.458	-.769	-.196	40.597	21.181	.019
959.0	387891.3	24404.3	-1.258	75.491	-.797	-.179	40.567	21.231	.019

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
960.0	387371.0	24404.9	-1.258	75.525	-.830	-.164	40.534	21.281	.020
961.0	386850.7	24405.6	-1.258	75.559	-.860	-.149	40.505	21.332	.020
962.0	386330.5	24406.2	-1.258	75.593	-.888	-.131	40.481	21.382	.021
963.0	385810.4	24406.9	-1.257	75.627	-.926	-.119	40.457	21.433	.021
964.0	385290.4	24407.5	-1.257	75.661	-.963	-.108	40.433	21.484	.022
965.0	384770.5	24408.2	-1.257	75.695	-.993	-.093	40.413	21.535	.022
966.0	384250.6	24408.8	-1.256	75.729	-1.034	-.080	40.392	21.586	.023
967.0	383730.9	24409.5	-1.256	75.763	-1.070	-.063	40.376	21.637	.023
968.0	383211.2	24410.1	-1.256	75.797	-1.110	-.048	40.357	21.688	.024
969.0	382691.6	24410.8	-1.256	75.831	-1.150	-.033	40.338	21.739	.024
970.0	382172.1	24411.4	-1.255	75.865	-1.182	-.022	40.329	21.791	.025
971.0	381652.7	24412.1	-1.255	75.899	-1.226	-.015	40.313	21.842	.025
972.0	381133.3	24412.7	-1.255	75.933	-1.262	.011	40.302	21.894	.026
973.0	380614.1	24413.4	-1.254	75.967	-1.327	-.044	40.293	21.945	.026
974.0	380095.0	24414.0	-1.254	76.002	-1.408	-.163	40.285	21.997	.027
975.0	379575.9	24414.7	-1.254	76.036	-1.476	-.282	40.271	22.048	.027
976.0	379056.9	24415.4	-1.253	76.070	-1.564	-.412	40.272	22.100	.028
977.0	378538.1	24416.0	-1.253	76.104	-1.474	-.371	40.273	22.152	.029
978.0	378019.3	24416.7	-1.253	76.139	-1.330	-.291	40.281	22.204	.029
979.0	377500.6	24417.3	-1.252	76.173	-1.192	-.213	40.296	22.256	.030
980.0	376982.1	24418.0	-1.252	76.208	-1.057	-.123	40.313	22.308	.031
981.0	376463.6	24418.6	-1.252	76.242	-.926	-.043	40.329	22.360	.031
982.0	375945.2	24419.3	-1.251	76.276	-.791	.038	40.347	22.411	.032
983.0	375426.9	24419.9	-1.251	76.311	-.644	.128	40.363	22.463	.033
984.0	374908.7	24420.6	-1.251	76.345	-.513	.207	40.377	22.515	.034
985.0	374390.6	24421.2	-1.250	76.380	-.374	.283	40.401	22.567	.034
986.0	373872.6	24421.9	-1.250	76.415	-.272	.348	40.421	22.619	.035
987.0	373354.7	24422.5	-1.250	76.449	-.255	.326	40.457	22.671	.036
988.0	372837.0	24423.1	-1.249	76.484	-.238	.305	40.492	22.723	.037
989.0	372319.3	24423.8	-1.249	76.519	-.218	.293	40.530	22.775	.038

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
990.0	371801.7	24424.5	-1.249	76.553	-.192	.271	40.567	22.827	.039
991.0	371284.2	24425.1	-1.248	76.588	-.176	.249	40.605	22.878	.040
992.0	370766.9	24425.7	-1.248	76.623	-.161	.234	40.647	22.930	.040
993.0	370249.6	24426.4	-1.248	76.658	-.145	.213	40.687	22.982	.041
994.0	369732.4	24427.0	-1.247	76.692	-.124	.197	40.729	23.034	.042
995.0	369215.4	24427.7	-1.247	76.727	-.110	.174	40.770	23.085	.043
996.0	368698.5	24428.3	-1.246	76.762	-.095	.155	40.813	23.137	.044
997.0	368181.7	24428.9	-1.246	76.797	-.078	.133	40.856	23.188	.046
998.0	367664.9	24429.6	-1.246	76.832	-.064	.112	40.898	23.239	.047
999.0	367148.3	24430.2	-1.245	76.867	-.054	.097	40.946	23.291	.048
1000.0	366631.9	24430.9	-1.245	76.902	-.032	.079	40.962	23.342	.049
1001.0	366115.5	24431.5	-1.245	76.937	-.021	.060	40.977	23.393	.050
1002.0	365599.3	24432.1	-1.244	76.972	-.012	.040	40.991	23.444	.051
1003.0	365083.2	24432.8	-1.244	77.007	.001	.020	41.010	23.494	.053
1004.0	364567.2	24433.4	-1.243	77.042	.017	.006	41.020	23.545	.054
1005.0	364051.4	24434.0	-1.243	77.077	.039	-.001	40.957	23.596	.055
1006.0	363535.6	24434.6	-1.243	77.112	.056	-.013	40.889	23.646	.057
1007.0	363020.1	24435.3	-1.242	77.148	.072	-.016	40.808	23.696	.058
1008.0	362504.6	24435.9	-1.242	77.183	.092	-.032	40.734	23.746	.059
1009.0	361989.2	24436.5	-1.241	77.218	.107	-.042	40.662	23.796	.061
1010.0	361474.0	24437.2	-1.241	77.253	.129	-.051	40.585	23.846	.062
1011.0	360958.9	24437.8	-1.241	77.289	.154	-.055	40.513	23.896	.064
1012.0	360444.0	24438.4	-1.240	77.324	.171	-.066	40.438	23.945	.066
1013.0	359929.1	24439.0	-1.240	77.359	.189	-.078	40.364	23.994	.067
1014.0	359414.4	24439.7	-1.239	77.395	.208	-.084	40.288	24.043	.069
1015.0	358899.8	24440.3	-1.239	77.430	.224	-.093	40.207	24.092	.071
1016.0	358385.4	24440.9	-1.238	77.466	.245	-.100	40.129	24.140	.073
1017.0	357871.1	24441.6	-1.238	77.501	.262	-.113	40.048	24.189	.074
1018.0	357356.9	24442.2	-1.238	77.537	.285	-.118	39.972	24.237	.076
1019.0	356842.9	24442.8	-1.237	77.572	.301	-.126	39.891	24.285	.078

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 35 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1020.0	356329.0	24443.4	-1.237	77.608	.324	-.137	39.813	24.332	.080
1021.0	355815.2	24444.0	-1.236	77.643	.339	-.144	39.727	24.380	.082
1022.0	355301.6	24444.7	-1.236	77.679	.358	-.149	39.642	24.427	.084
1023.0	354788.1	24445.3	-1.235	77.714	.376	-.158	39.560	24.474	.087
1024.0	354274.7	24445.9	-1.235	77.750	.397	-.159	39.473	24.520	.089
1025.0	353761.5	24446.5	-1.235	77.786	.420	-.172	39.382	24.567	.091
1026.0	353248.5	24447.1	-1.234	77.821	.438	-.175	39.286	24.613	.093
1027.0	352735.5	24447.7	-1.234	77.857	.460	-.176	39.201	24.658	.096
1028.0	352222.7	24448.4	-1.233	77.893	.487	-.186	39.137	24.704	.098
1029.0	351710.1	24449.0	-1.233	77.929	.502	-.187	39.085	24.749	.101
1030.0	351197.6	24449.6	-1.232	77.965	.515	-.199	39.059	24.794	.104
1031.0	350685.2	24450.2	-1.232	78.000	.535	-.208	39.039	24.838	.106
1032.0	350173.0	24450.9	-1.232	78.036	.554	-.215	39.042	24.882	.109
1033.0	349660.9	24451.5	-1.231	78.072	.568	-.216	39.057	24.926	.112
1034.0	349149.0	24452.1	-1.231	78.108	.594	-.215	39.064	24.970	.115
1035.0	348637.2	24452.7	-1.230	78.144	.622	-.220	39.073	25.013	.118
1036.0	348125.5	24453.3	-1.230	78.180	.634	-.223	39.115	25.056	.121
1037.0	347614.0	24453.9	-1.229	78.216	.655	-.222	39.157	25.098	.124
1038.0	347102.7	24454.5	-1.229	78.252	.678	-.235	39.205	25.140	.127
1039.0	346591.5	24455.1	-1.228	78.288	.707	-.185	39.273	25.182	.131
1040.0	346080.5	24455.7	-1.228	78.324	.754	-.060	39.341	25.223	.134
1041.0	345569.6	24456.3	-1.227	78.360	.809	.075	39.405	25.264	.138
1042.0	345058.9	24456.9	-1.227	78.397	.865	.212	39.463	25.305	.142
1043.0	344548.3	24457.5	-1.226	78.433	.905	.333	39.522	25.345	.145
1044.0	344038.0	24458.1	-1.226	78.469	.809	.344	39.584	25.385	.149
1045.0	343527.8	24458.7	-1.225	78.505	.695	.312	39.651	25.424	.153
1046.0	343017.8	24459.3	-1.225	78.541	.585	.298	39.716	25.463	.157
1047.0	342507.9	24459.9	-1.224	78.578	.463	.284	39.773	25.501	.162
1048.0	341998.2	24460.5	-1.224	78.614	.354	.264	39.826	25.540	.166
1049.0	341488.8	24461.1	-1.223	78.650	.237	.246	39.875	25.577	.170

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1050.0	340979.5	24461.6	-1.223	78.687	.120	.224	39.920	25.614	.175
1051.0	340470.3	24462.2	-1.222	78.723	.002	.203	39.964	25.651	.180
1052.0	339961.4	24462.8	-1.221	78.759	-.114	.186	40.005	25.688	.184
1053.0	339452.7	24463.4	-1.221	78.796	-.219	.167	40.027	25.724	.189
1054.0	338944.1	24463.9	-1.220	78.832	-.340	.149	40.060	25.759	.194
1055.0	338435.8	24464.5	-1.220	78.869	-.450	.133	40.080	25.794	.200
1056.0	337927.6	24465.0	-1.219	78.905	-.569	.119	40.092	25.829	.205
1057.0	337419.7	24465.6	-1.219	78.942	-.677	.106	40.095	25.863	.211
1058.0	336912.0	24466.1	-1.218	78.978	-.788	.092	40.096	25.896	.216
1059.0	336404.4	24466.7	-1.217	79.015	-.898	.081	40.089	25.929	.222
1060.0	335897.1	24467.2	-1.217	79.052	-1.010	.076	40.079	25.962	.228
1061.0	335390.0	24467.8	-1.216	79.088	-1.123	.042	40.059	25.994	.234
1062.0	334883.1	24468.3	-1.216	79.125	-1.256	-.072	40.026	26.026	.241
1063.0	334376.5	24468.9	-1.215	79.161	-1.399	-.213	39.986	26.057	.247
1064.0	333870.0	24469.4	-1.214	79.198	-1.526	-.332	39.938	26.088	.254
1065.0	333363.8	24469.9	-1.214	79.235	-1.620	-.425	39.880	26.118	.261
1066.0	332857.8	24470.5	-1.213	79.272	-1.689	-.491	39.813	26.148	.268
1067.0	332352.1	24471.0	-1.212	79.309	-1.735	-.534	39.741	26.177	.275
1068.0	331846.5	24471.5	-1.212	79.345	-1.761	-.559	39.664	26.206	.283
1069.0	331341.2	24472.0	-1.211	79.382	-1.772	-.570	39.586	26.234	.290
1070.0	330836.2	24472.6	-1.210	79.419	-1.769	-.570	39.510	26.262	.298
1071.0	330331.3	24473.1	-1.210	79.456	-1.756	-.563	39.437	26.289	.306
1072.0	329826.7	24473.6	-1.209	79.493	-1.736	-.555	39.370	26.316	.315
1073.0	329322.3	24474.1	-1.208	79.529	-1.713	-.548	39.311	26.342	.323
1074.0	328818.2	24474.7	-1.208	79.566	-1.688	-.547	39.263	26.368	.332
1075.0	328314.4	24475.2	-1.207	79.603	-1.667	-.555	39.228	26.394	.278
1076.0	327810.8	24475.7	-1.206	79.640	-1.634	-.568	39.201	26.418	.286
1077.0	327307.4	24476.2	-1.206	79.677	-1.654	-.569	39.170	26.443	.294
1078.0	326804.3	24476.7	-1.205	79.714	-1.650	-.579	39.162	26.466	.301
1079.0	326301.5	24477.2	-1.204	79.751	-1.589	-.534	39.168	26.490	.310

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1080.0	325799.0	24477.7	-1.203	79.789	-1.398	-.373	39.188	26.512	.318
1081.0	325296.7	24478.2	-1.203	79.826	-1.216	-.218	39.192	26.535	.326
1082.0	324794.7	24478.7	-1.202	79.863	-1.026	-.057	39.189	26.557	.335
1083.0	324292.9	24479.2	-1.201	79.900	-.826	.110	39.212	26.578	.344
1084.0	323791.5	24479.7	-1.200	79.937	-.704	.220	39.277	26.599	.354
1085.0	323290.3	24480.1	-1.200	79.974	-.681	.228	39.338	26.619	.364
1086.0	322789.4	24480.6	-1.199	80.012	-.650	.247	39.382	26.639	.374
1087.0	322288.8	24481.0	-1.198	80.049	-.631	.263	39.415	26.658	.384
1088.0	321788.5	24481.5	-1.197	80.086	-.600	.278	39.436	26.677	.395
1089.0	321288.5	24481.9	-1.196	80.123	-.566	.306	39.443	26.695	.405
1090.0	320788.9	24482.4	-1.195	80.161	-.536	.331	39.439	26.713	.416
1091.0	320289.5	24482.8	-1.194	80.198	-.499	.357	39.440	26.730	.427
1092.0	319790.5	24483.3	-1.194	80.235	-.461	.384	39.487	26.747	.439
1093.0	319291.8	24483.7	-1.193	80.273	-.431	.422	39.516	26.764	.450
1094.0	318793.4	24484.2	-1.192	80.310	-.412	.396	39.532	26.780	.462
1095.0	318295.4	24484.6	-1.191	80.347	-.397	.307	39.533	26.795	.475
1096.0	317797.7	24485.0	-1.190	80.385	-.382	.219	39.515	26.810	.489
1097.0	317300.4	24485.4	-1.189	80.422	-.361	.134	39.486	26.825	.501
1098.0	316803.4	24485.8	-1.188	80.460	-.340	.052	39.487	26.839	.516
1099.0	316306.7	24486.2	-1.187	80.497	-.318	-.026	39.501	26.852	.528
1100.0	315810.4	24486.6	-1.186	80.535	-.288	-.098	39.504	26.866	.544
1101.0	315314.5	24487.0	-1.185	80.573	-.246	-.165	39.506	26.878	.559
1102.0	314818.9	24487.4	-1.184	80.610	-.190	-.227	39.487	26.891	.573
1103.0	314323.7	24487.7	-1.183	80.648	-.123	-.270	39.455	26.903	.590
1104.0	313828.9	24488.1	-1.182	80.685	-.043	-.254	39.465	26.914	.604
1105.0	313334.4	24488.5	-1.181	80.723	.054	-.238	39.494	26.925	.622
1106.0	312840.4	24488.8	-1.180	80.761	.158	-.216	39.513	26.936	.638
1107.0	312346.7	24489.2	-1.179	80.798	.268	-.183	39.520	26.946	.656
1108.0	311853.4	24489.5	-1.178	80.836	.388	-.136	39.518	26.955	.673
1109.0	311360.5	24489.9	-1.177	80.874	.522	-.089	39.507	26.965	.691

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1110.0	310868.1	24490.2	-1.176	80.912	.662	-.038	39.491	26.974	.709
1111.0	310376.1	24490.5	-1.175	80.949	.809	.028	39.463	26.982	.728
1112.0	309884.4	24490.9	-1.174	80.987	.953	.090	39.448	26.991	.748
1113.0	309393.3	24491.2	-1.173	81.025	1.112	.165	39.446	26.998	.767
1114.0	308902.5	24491.5	-1.172	81.063	1.277	.243	39.439	27.006	.789
1115.0	308412.3	24491.8	-1.170	81.101	1.437	.325	39.418	27.013	.810
1116.0	307922.4	24492.1	-1.169	81.139	1.557	.353	39.413	27.020	.832
1117.0	307433.1	24492.3	-1.168	81.177	1.616	.345	39.406	27.026	.854
1118.0	306944.3	24492.6	-1.167	81.215	1.673	.321	39.390	27.032	.877
1119.0	306455.9	24492.8	-1.165	81.253	1.691	.360	39.383	27.038	.901
1120.0	305968.1	24493.1	-1.164	81.291	1.612	.339	39.381	27.043	.925
1121.0	305480.7	24493.3	-1.163	81.329	1.529	.312	39.380	27.048	.949
1122.0	304993.9	24493.5	-1.162	81.367	1.457	.288	39.380	27.053	.974
1123.0	304507.7	24493.7	-1.160	81.405	1.376	.259	39.378	27.057	.999
1124.0	304022.0	24493.9	-1.159	81.443	1.283	.232	39.374	27.061	1.026
1125.0	303536.8	24494.0	-1.157	81.481	1.205	.214	39.374	27.065	1.053
1126.0	303052.2	24494.2	-1.156	81.519	1.118	.189	39.366	27.068	1.081
1127.0	302568.2	24494.4	-1.154	81.557	1.032	.174	39.369	27.072	1.109
1128.0	302084.8	24494.5	-1.153	81.595	.943	.157	39.375	27.075	1.140
1129.0	301602.0	24494.6	-1.151	81.633	.857	.144	39.381	27.077	1.169
1130.0	301119.8	24494.8	-1.150	81.672	.768	.134	39.396	27.080	1.199
1131.0	300638.2	24494.8	-1.148	81.710	.682	.122	39.409	27.082	1.230
1132.0	300157.3	24494.9	-1.147	81.748	.595	.117	39.434	27.084	1.262
1133.0	299677.1	24495.0	-1.145	81.786	.512	.109	39.465	27.086	1.295
1134.0	299197.5	24495.0	-1.143	81.824	.430	.108	39.502	27.087	1.329
1135.0	298718.6	24495.1	-1.141	81.863	.337	.107	39.545	27.088	1.363
1136.0	298240.4	24495.1	-1.140	81.901	.240	.103	39.604	27.089	1.399
1137.0	297763.0	24495.1	-1.138	81.939	.136	.100	39.678	27.090	1.434
1138.0	297286.3	24495.1	-1.136	81.978	.022	.098	39.757	27.091	1.471
1139.0	296810.3	24495.0	-1.134	82.016	-.093	.095	39.854	27.091	1.509



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1140.0	296335.2	24494.9	-1.132	82.054	-.219	.080	39.966	27.092	1.547
1141.0	295860.8	24494.9	-1.130	82.093	-.352	.071	40.100	27.092	1.587
1142.0	295387.2	24494.7	-1.128	82.131	-.486	.064	40.236	27.092	1.627
1143.0	294914.5	24494.6	-1.126	82.169	-.632	.049	40.402	27.092	1.667
1144.0	294442.6	24494.5	-1.124	82.208	-.779	.042	40.583	27.091	1.710
1145.0	293971.5	24494.3	-1.122	82.246	-.919	.032	40.772	27.091	1.753
1146.0	293501.4	24494.0	-1.120	82.285	-1.063	.042	40.995	27.090	1.797
1147.0	293032.2	24493.8	-1.117	82.323	-1.215	.013	41.178	27.090	1.842
1148.0	292564.1	24493.4	-1.115	82.361	-1.368	-.094	41.268	27.089	1.888
1149.0	292096.9	24493.1	-1.112	82.400	-1.498	-.181	41.337	27.088	1.936
1150.0	291630.8	24492.7	-1.110	82.438	-1.602	-.232	41.371	27.087	1.984
1151.0	291165.7	24492.3	-1.107	82.477	-1.674	-.251	41.388	27.086	2.033
1152.0	290701.8	24491.8	-1.105	82.515	-1.711	-.249	41.366	27.084	2.082
1153.0	290238.9	24491.4	-1.102	82.554	-1.722	-.220	41.304	27.083	2.134
1154.0	289777.2	24490.8	-1.099	82.592	-1.706	-.243	41.201	27.082	2.185
1155.0	289316.6	24490.4	-1.096	82.631	-1.664	-.270	41.056	27.080	2.240
1156.0	288857.1	24489.9	-1.094	82.669	-1.565	-.243	40.866	27.079	2.294
1157.0	288398.8	24489.3	-1.091	82.708	-1.437	-.189	40.632	27.077	2.348
1158.0	287941.7	24488.8	-1.088	82.746	-1.285	-.117	40.375	27.076	2.405
1159.0	287485.7	24488.3	-1.085	82.785	-1.124	-.040	40.088	27.075	2.464
1160.0	287031.0	24487.7	-1.082	82.824	-.957	.042	39.766	27.073	2.522
1161.0	286577.5	24487.2	-1.079	82.862	-.794	.117	39.482	27.072	2.582
1162.0	286125.2	24486.7	-1.076	82.901	-.656	.176	39.242	27.071	2.644
1163.0	285674.0	24486.2	-1.074	82.940	-.547	.226	39.091	27.069	2.706
1164.0	285224.1	24485.6	-1.071	82.979	-.473	.250	38.992	27.068	2.769
1165.0	284775.5	24485.1	-1.067	83.017	-.415	.256	38.924	27.067	2.834
1166.0	284328.1	24484.4	-1.064	83.056	-.379	.261	38.896	27.066	2.901
1167.0	283882.0	24483.8	-1.061	83.095	-.375	.241	38.920	27.065	2.968
1168.0	283437.3	24483.2	-1.058	83.134	-.393	.212	38.996	27.064	3.037
1169.0	282994.0	24482.5	-1.055	83.173	-.423	.176	39.128	27.063	3.107

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1170.0	282552.0	24481.7	-1.051	83.211	-.463	.135	39.323	27.062	3.178
1171.0	282111.5	24480.9	-1.048	83.250	-.498	.103	39.574	27.061	3.250
1172.0	281672.4	24480.1	-1.044	83.289	-.520	.087	39.869	27.060	3.324
1173.0	281234.9	24479.2	-1.041	83.328	-.538	.079	40.202	27.059	3.399
1174.0	280798.9	24478.3	-1.037	83.367	-.547	.072	40.523	27.058	3.475
1175.0	280364.5	24477.2	-1.033	83.406	-.562	.072	40.764	27.058	3.552
1176.0	279931.8	24476.2	-1.029	83.445	-.562	.081	40.993	27.057	3.631
1177.0	279500.8	24475.0	-1.025	83.484	-.557	.106	41.181	27.057	3.711
1178.0	279071.5	24473.8	-1.021	83.522	-.537	.130	41.291	27.056	3.792
1179.0	278643.9	24472.6	-1.017	83.561	-.527	.154	41.330	27.056	3.875
1180.0	278218.1	24471.3	-1.012	83.600	-.517	.182	41.299	27.056	3.958
1181.0	277794.2	24470.1	-1.008	83.639	-.521	.197	41.197	27.056	4.043
1182.0	277372.0	24468.8	-1.004	83.678	-.528	.204	41.025	27.056	4.129
1183.0	276951.7	24467.4	-.999	83.717	-.559	.193	40.789	27.056	4.217
1184.0	276533.3	24466.1	-.995	83.756	-.608	.173	40.504	27.057	4.305
1185.0	276116.7	24464.8	-.991	83.795	-.640	.163	40.180	27.058	4.395
1186.0	275702.0	24463.5	-.986	83.834	-.675	.156	39.869	27.056	4.487
1187.0	275289.1	24462.2	-.982	83.874	-.718	.153	39.614	27.039	4.581
1188.0	274878.2	24461.0	-.977	83.912	-.750	.143	39.394	27.023	4.677
1189.0	274469.1	24459.7	-.973	83.952	-.778	.146	39.240	27.006	4.775
1190.0	274061.9	24458.4	-.968	83.991	-.807	.142	39.140	26.990	4.874
1191.0	273656.7	24457.0	-.963	84.030	-.829	.149	39.105	26.973	4.974
1192.0	273253.5	24455.6	-.959	84.069	-.837	.151	39.123	26.957	5.076
1193.0	272852.2	24454.2	-.954	84.108	-.844	.163	39.206	26.941	5.179
1194.0	272453.0	24452.8	-.949	84.147	-.854	.173	39.349	26.925	5.284
1195.0	272055.8	24451.2	-.944	84.186	-.855	.186	39.550	26.908	5.390
1196.0	271660.8	24449.6	-.939	84.225	-.841	.205	39.807	26.892	5.497
1197.0	271267.9	24447.9	-.934	84.265	-.824	.229	40.100	26.876	5.606
1198.0	270877.3	24446.2	-.928	84.304	-.773	.268	40.397	26.860	5.716
1199.0	270489.1	24444.2	-.923	84.343	-.734	.290	40.639	26.844	5.827

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1200.0	270103.2	24442.3	-.917	84.382	-.712	.293	40.839	26.828	5.940
1201.0	269719.8	24440.3	-.911	84.421	-.703	.280	40.995	26.812	6.054
1202.0	269338.8	24438.2	-.905	84.460	-.710	.242	41.088	26.796	6.169
1203.0	268960.4	24436.1	-.900	84.500	-.703	.207	41.109	26.780	6.286
1204.0	268584.6	24433.9	-.893	84.539	-.677	.174	41.060	26.764	6.403
1205.0	268211.3	24431.6	-.887	84.578	-.591	.171	40.936	26.749	6.522
1206.0	267840.7	24429.4	-.881	84.617	-.465	.196	40.745	26.733	6.642
1207.0	267472.8	24427.1	-.875	84.657	-.296	.234	40.508	26.718	6.764
1208.0	267107.5	24424.9	-.868	84.696	-.104	.270	40.251	26.702	6.886
1209.0	266744.9	24422.6	-.862	84.736	.095	.302	39.986	26.687	7.010
1210.0	266385.0	24420.4	-.856	84.775	.311	.331	39.723	26.672	7.135
1211.0	266027.8	24418.2	-.849	84.814	.539	.353	39.584	26.657	7.260
1212.0	265673.2	24416.0	-.843	84.854	.812	.398	39.703	26.642	7.388
1213.0	265321.4	24413.6	-.836	84.893	1.072	.425	39.935	26.627	7.516
1214.0	264972.5	24411.0	-.829	84.933	1.306	.426	40.138	26.612	7.644
1215.0	264626.7	24408.5	-.822	84.973	1.511	.387	39.873	26.597	7.774
1216.0	264284.1	24406.0	-.815	85.012	1.757	.374	39.278	26.582	7.905
1217.0	263944.3	24403.7	-.808	85.052	1.985	.335	39.154	26.568	8.036
1218.0	263607.5	24401.0	-.801	85.092	2.230	.309	39.169	26.553	8.169
1219.0	263273.8	24398.4	-.794	85.131	2.485	.288	39.199	26.539	8.302
1220.0	262943.2	24395.7	-.786	85.171	2.844	.351	39.289	26.525	8.436
1221.0	262615.7	24393.0	-.779	85.211	3.515	.641	39.451	26.510	8.570
1222.0	262291.4	24390.2	-.771	85.251	3.928	.661	39.728	26.496	8.705
1223.0	261970.4	24387.3	-.763	85.291	4.272	.655	40.002	26.482	8.841
1224.0	261652.7	24384.4	-.755	85.331	5.001	1.042	40.286	26.468	8.977
1225.0	261338.4	24381.3	-.747	85.371	5.647	1.283	40.535	26.454	9.113
1226.0	261027.6	24378.0	-.739	85.412	5.535	.731	40.739	26.440	9.250
1227.0	260720.4	24374.7	-.731	85.452	5.637	.565	40.864	26.425	9.387
1228.0	260416.6	24371.3	-.722	85.493	5.713	.551	40.894	26.411	9.524
1229.0	260116.5	24367.9	-.714	85.534	5.406	.751	40.886	26.398	9.661

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHA (DEG)	MACHA (-)	QA (PSF)
1230.0	259820.1	24364.3	-.705	85.575	4.235	.787	40.901	26.384	9.798
1231.0	259527.4	24360.6	-.696	85.614	2.747	.462	40.832	26.370	9.935
1232.0	259238.6	24356.9	-.687	85.654	1.447	.071	40.645	26.356	10.072
1233.0	258953.8	24353.2	-.678	85.694	.448	-.137	40.384	26.342	10.209
1234.0	258672.8	24349.5	-.668	85.733	-.221	-.252	40.099	26.329	10.345
1235.0	258395.7	24345.8	-.659	85.773	-.622	-.175	39.818	26.316	10.482
1236.0	258122.5	24342.2	-.650	85.812	-.931	-.056	39.640	26.303	10.618
1237.0	257853.4	24338.4	-.640	85.851	-1.175	-.012	39.512	26.289	10.753
1238.0	257588.2	24334.6	-.631	85.890	-1.372	.019	39.407	26.277	10.888
1239.0	257327.1	24330.9	-.621	85.929	-1.519	-.015	39.348	26.264	11.023
1240.0	257070.0	24327.1	-.612	85.969	-1.583	.014	39.339	26.251	11.156
1241.0	256817.1	24323.2	-.602	86.008	-1.609	.056	39.374	26.239	11.289
1242.0	256568.2	24319.3	-.592	86.047	-1.653	.095	39.459	26.226	11.421
1243.0	256323.5	24315.2	-.582	86.086	-1.708	.069	39.589	26.214	11.552
1244.0	256083.1	24311.1	-.572	86.125	-1.736	-.049	39.754	26.201	11.682
1245.0	255847.0	24306.9	-.562	86.164	-1.675	-.095	39.927	26.189	11.811
1246.0	255615.3	24302.6	-.552	86.204	-1.512	-.069	40.087	26.177	11.938
1247.0	255388.0	24298.2	-.541	86.243	-1.337	.097	40.233	26.165	12.064
1248.0	255165.2	24293.8	-.531	86.283	-1.405	.713	40.363	26.153	12.189
1249.0	254946.9	24289.2	-.520	86.323	-2.293	1.338	40.468	26.141	12.312
1250.0	254733.1	24284.6	-.509	86.362	-4.272	1.420	40.576	26.129	12.434
1251.0	254523.9	24279.9	-.498	86.401	-6.935	1.008	40.675	26.117	12.553
1252.0	254319.3	24275.2	-.487	86.439	-9.815	.686	40.755	26.105	12.671
1253.0	254119.4	24270.4	-.476	86.477	-12.764	.471	40.824	26.094	12.787
1254.0	253924.0	24265.5	-.466	86.513	-15.708	.346	40.853	26.082	12.901
1255.0	253733.1	24260.6	-.455	86.549	-18.640	.297	40.834	26.071	13.014
1256.0	253546.7	24255.6	-.444	86.585	-21.545	.272	40.770	26.059	13.124
1257.0	253364.8	24250.7	-.434	86.620	-24.444	.276	40.667	26.048	13.232
1258.0	253187.2	24245.7	-.424	86.654	-27.373	.287	40.512	26.037	13.339
1259.0	253013.7	24240.7	-.414	86.687	-30.295	.317	40.330	26.026	13.443

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHA (DEG)	MACHA (-)	QA (PSF)
1260.0	252844.4	24235.8	-.405	86.720	-33.259	.350	40.151	26.015	13.546
1261.0	252679.0	24230.8	-.396	86.753	-36.285	.363	39.994	26.005	13.647
1262.0	252517.4	24225.9	-.387	86.785	-39.360	.360	39.868	25.994	13.746
1263.0	252359.4	24221.0	-.379	86.816	-42.498	.342	39.784	25.984	13.844
1264.0	252204.7	24216.0	-.371	86.847	-45.655	.310	39.755	25.974	13.940
1265.0	252053.3	24211.0	-.364	86.877	-48.821	.284	39.756	25.963	14.035
1266.0	251904.7	24206.0	-.357	86.906	-51.927	-.066	39.786	25.953	14.128
1267.0	251758.8	24200.9	-.351	86.935	-54.531	-.523	39.819	25.943	14.220
1268.0	251615.3	24195.8	-.345	86.964	-56.264	-.696	39.827	25.933	14.311
1269.0	251474.2	24190.7	-.340	86.993	-57.404	-.463	39.806	25.923	14.401
1270.0	251335.5	24185.5	-.334	87.021	-58.370	-.158	39.767	25.913	14.490
1271.0	251198.9	24180.4	-.329	87.049	-59.349	-.015	39.715	25.903	14.578
1272.0	251064.6	24175.2	-.324	87.077	-60.346	.074	39.669	25.893	14.665
1273.0	250932.3	24170.0	-.319	87.105	-61.376	.016	39.629	25.883	14.751
1274.0	250802.0	24164.9	-.315	87.133	-62.321	-.008	39.613	25.873	14.836
1275.0	250673.7	24159.7	-.310	87.161	-63.228	-.007	39.623	25.863	14.920
1276.0	250547.2	24154.4	-.306	87.188	-64.089	.015	39.654	25.854	15.003
1277.0	250422.5	24149.2	-.302	87.216	-64.938	.047	39.714	25.844	15.085
1278.0	250299.4	24143.8	-.298	87.243	-65.785	.012	39.786	25.834	15.166
1279.0	250178.0	24138.4	-.294	87.270	-66.557	-.048	39.868	25.824	15.247
1280.0	250058.2	24132.8	-.290	87.296	-67.258	-.036	39.948	25.814	15.326
1281.0	249939.8	24127.2	-.287	87.323	-67.899	-.089	40.018	25.804	15.405
1282.0	249822.9	24121.6	-.283	87.349	-68.399	-.138	40.078	25.794	15.483
1283.0	249707.5	24115.8	-.280	87.375	-68.783	-.101	40.115	25.785	15.561
1284.0	249593.4	24110.0	-.277	87.401	-69.142	-.068	40.143	25.775	15.637
1285.0	249480.7	24104.2	-.273	87.427	-69.489	-.051	40.141	25.765	15.713
1286.0	249369.4	24098.3	-.270	87.453	-69.834	-.059	40.129	25.755	15.788
1287.0	249259.3	24092.4	-.267	87.478	-70.117	-.115	40.104	25.745	15.863
1288.0	249150.5	24086.6	-.264	87.504	-70.292	-.120	40.077	25.735	15.937
1289.0	249042.9	24080.7	-.261	87.529	-70.419	-.103	40.052	25.725	16.010

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1290.0	248936.5	24074.8	-.259	87.555	-70.522	-.089	40.028	25.715	16.083
1291.0	248831.3	24068.9	-.256	87.580	-70.609	-.084	40.009	25.705	16.155
1292.0	248727.3	24063.0	-.253	87.606	-70.681	-.071	39.992	25.696	16.227
1293.0	248624.4	24057.1	-.250	87.631	-70.746	-.006	39.973	25.686	16.298
1294.0	248522.6	24051.2	-.248	87.657	-70.866	.025	39.961	25.676	16.368
1295.0	248422.0	24045.3	-.245	87.682	-71.039	.005	39.945	25.667	16.438
1296.0	248322.4	24039.3	-.242	87.707	-71.229	-.003	39.939	25.657	16.507
1297.0	248224.0	24033.2	-.240	87.732	-71.456	.021	39.938	25.647	16.575
1298.0	248126.5	24027.2	-.237	87.757	-71.690	-.002	39.936	25.638	16.643
1299.0	248030.1	24021.2	-.235	87.782	-71.907	-.014	39.936	25.628	16.711
1300.0	247934.6	24015.1	-.233	87.807	-72.117	-.034	39.939	25.618	16.777
1301.0	247840.1	24009.0	-.231	87.832	-72.306	-.064	39.942	25.609	16.844
1302.0	247746.5	24002.9	-.228	87.857	-72.467	-.046	39.950	25.600	16.913
1303.0	247653.8	23996.7	-.226	87.881	-72.629	.015	39.955	25.590	16.978
1304.0	247561.9	23990.5	-.224	87.906	-72.843	.030	39.962	25.581	17.043
1305.0	247470.9	23984.3	-.222	87.930	-73.079	.013	39.969	25.571	17.107
1306.0	247380.7	23978.1	-.220	87.955	-73.302	-.006	39.974	25.561	17.170
1307.0	247291.3	23971.8	-.219	87.979	-73.508	-.025	39.972	25.551	17.233
1308.0	247202.6	23965.5	-.217	88.003	-73.697	-.038	39.973	25.542	17.296
1309.0	247114.6	23959.2	-.215	88.027	-73.854	-.055	39.965	25.532	17.358
1310.0	247027.3	23952.9	-.214	88.051	-73.972	-.044	39.962	25.522	17.420
1311.0	246940.6	23946.6	-.212	88.075	-74.047	-.024	39.942	25.513	17.482
1312.0	246854.6	23940.2	-.210	88.099	-74.113	-.007	39.931	25.503	17.543
1313.0	246769.2	23933.8	-.209	88.123	-74.173	-.004	39.913	25.493	17.604
1314.0	246684.3	23927.5	-.208	88.147	-74.203	.015	39.900	25.484	17.665
1315.0	246600.1	23921.1	-.206	88.171	-74.205	.044	39.895	25.474	17.725
1316.0	246516.4	23914.7	-.205	88.195	-74.194	.074	39.897	25.464	17.785
1317.0	246433.3	23908.3	-.203	88.218	-74.211	.119	39.911	25.455	17.845
1318.0	246350.8	23901.9	-.202	88.242	-74.264	.129	39.931	25.445	17.904
1319.0	246268.8	23895.4	-.201	88.266	-74.347	.119	39.958	25.435	17.963

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1320.0	246187.4	23888.9	-.200	88.289	-74.442	.115	39.989	25.426	18.022
1321.0	246106.4	23882.4	-.198	88.313	-74.573	.115	40.013	25.416	18.081
1322.0	246025.9	23875.9	-.197	88.336	-74.699	.098	40.033	25.406	18.139
1323.0	245945.9	23869.3	-.196	88.359	-74.814	.088	40.051	25.397	18.197
1324.0	245866.3	23862.7	-.195	88.383	-74.918	.084	40.056	25.387	18.255
1325.0	245787.1	23856.1	-.194	88.406	-75.009	.078	40.053	25.377	18.313
1326.0	245708.3	23849.6	-.193	88.429	-75.095	.068	40.035	25.368	18.370
1327.0	245629.8	23843.0	-.193	88.453	-75.163	.074	40.015	25.358	18.428
1328.0	245551.6	23836.4	-.192	88.476	-75.202	.087	39.991	25.348	18.485
1329.0	245473.7	23829.8	-.191	88.499	-75.212	.119	39.963	25.339	18.542
1330.0	245396.2	23823.2	-.190	88.522	-75.226	.160	39.945	25.329	18.600
1331.0	245318.9	23816.6	-.190	88.545	-75.256	.178	39.925	25.320	18.657
1332.0	245241.9	23810.0	-.189	88.568	-75.306	.167	39.907	25.310	18.714
1333.0	245165.1	23803.4	-.188	88.591	-75.376	.144	39.894	25.300	18.771
1334.0	245088.6	23796.8	-.188	88.614	-75.446	.118	39.880	25.290	18.836
1335.0	245012.2	23790.1	-.187	88.637	-75.499	.113	39.884	25.281	18.894
1336.0	244936.1	23783.5	-.187	88.660	-75.493	.138	39.884	25.271	18.951
1337.0	244860.1	23776.8	-.187	88.682	-75.486	.169	39.897	25.261	19.008
1338.0	244784.3	23770.1	-.186	88.705	-75.482	.198	39.923	25.252	19.065
1339.0	244708.6	23763.4	-.186	88.728	-75.488	.222	39.952	25.242	19.122
1340.0	244633.1	23756.7	-.185	88.751	-75.512	.237	39.977	25.232	19.179
1341.0	244557.7	23750.0	-.185	88.774	-75.553	.230	39.997	25.223	19.236
1342.0	244482.4	23743.4	-.185	88.796	-75.627	.199	40.017	25.213	19.293
1343.0	244407.1	23736.6	-.185	88.819	-75.701	.182	40.036	25.203	19.351
1344.0	244331.9	23729.9	-.185	88.842	-75.747	.182	40.040	25.194	19.408
1345.0	244256.8	23723.1	-.185	88.864	-75.773	.201	40.046	25.184	19.466
1346.0	244181.6	23716.3	-.185	88.886	-75.784	.239	40.031	25.174	19.523
1347.0	244106.5	23709.5	-.185	88.909	-75.807	.272	40.007	25.165	19.581
1348.0	244031.4	23702.7	-.185	88.931	-75.876	.281	39.981	25.155	19.638
1349.0	243956.3	23695.9	-.185	88.954	-75.986	.257	39.961	25.145	19.696

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HOGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1350.0	243881.1	23689.1	-.185	88.976	-76.115	.227	39.947	25.135	19.755
1351.0	243805.8	23682.3	-.185	88.998	-76.231	.219	39.931	25.126	19.813
1352.0	243730.4	23675.5	-.185	89.021	-76.329	.216	39.918	25.116	19.872
1353.0	243654.9	23668.7	-.186	89.043	-76.446	.209	39.911	25.106	19.931
1354.0	243579.2	23661.9	-.186	89.065	-76.555	.208	39.905	25.096	19.990
1355.0	243503.2	23655.1	-.187	89.087	-76.668	.207	39.902	25.087	20.049
1356.0	243427.1	23648.2	-.187	89.109	-76.786	.210	39.911	25.077	20.109
1357.0	243350.7	23641.3	-.188	89.131	-76.907	.214	39.923	25.067	20.170
1358.0	243274.0	23634.5	-.189	89.153	-77.030	.216	39.944	25.057	20.230
1359.0	243197.1	23627.5	-.189	89.175	-77.185	.196	39.964	25.047	20.291
1360.0	243119.7	23620.6	-.190	89.196	-77.294	.117	39.985	25.037	20.353
1361.0	243042.0	23613.6	-.191	89.218	-77.296	.110	40.009	25.027	20.415
1362.0	242963.9	23606.6	-.192	89.240	-77.234	.161	40.026	25.017	20.477
1363.0	242885.5	23599.6	-.193	89.261	-77.179	.199	40.032	25.007	20.540
1364.0	242806.6	23592.6	-.194	89.283	-77.179	.192	40.027	24.997	20.604
1365.0	242727.4	23585.5	-.195	89.304	-77.191	.156	40.012	24.987	20.668
1366.0	242647.7	23308.2	-.198	89.224	-77.100	.031	39.895	24.690	20.260
1367.0	242567.5	23300.8	-.199	89.246	-76.887	.034	39.874	24.680	20.323
1368.0	242487.0	23293.5	-.200	89.268	-76.627	.047	39.844	24.669	20.387
1369.0	242406.1	23286.2	-.201	89.290	-76.377	.063	39.823	24.659	20.451
1370.0	242324.8	23278.8	-.202	89.311	-76.138	.057	39.798	24.649	20.516
1371.0	242243.1	23271.5	-.203	89.333	-75.873	.062	39.777	24.638	20.581
1372.0	242161.2	23264.2	-.204	89.355	-75.588	.081	39.767	24.628	20.647
1373.0	242078.9	23256.8	-.205	89.376	-75.272	.116	39.769	24.617	20.713
1374.0	241996.3	23249.5	-.205	89.398	-74.951	.146	39.784	24.607	20.780
1375.0	241913.5	23242.1	-.206	89.420	-74.667	.152	39.803	24.596	20.847
1376.0	241830.4	23234.8	-.206	89.441	-74.396	.140	39.831	24.586	20.915
1377.0	241747.2	23227.4	-.207	89.463	-74.149	.119	39.856	24.575	20.982
1378.0	241663.8	23220.0	-.207	89.485	-73.889	.106	39.882	24.564	21.051
1379.0	241580.2	23212.6	-.208	89.506	-73.573	.118	39.908	24.554	21.119



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1380.0	241496.4	23205.1	-.208	89.528	-73.250	.143	39.928	24.543	21.188
1381.0	241412.5	23197.7	-.208	89.549	-72.926	.161	39.941	24.533	21.257
1382.0	241328.6	23190.2	-.208	89.571	-72.614	.179	39.949	24.522	21.327
1383.0	241244.7	23182.7	-.208	89.592	-72.319	.188	39.950	24.511	21.396
1384.0	241160.7	23175.2	-.208	89.614	-72.041	.180	39.933	24.501	21.466
1385.0	241076.7	23167.7	-.208	89.635	-71.775	.177	39.907	24.490	21.536
1386.0	240992.7	23160.2	-.208	89.656	-71.494	.179	39.883	24.479	21.607
1387.0	240908.8	23152.8	-.208	89.678	-71.225	.213	39.862	24.469	21.677
1388.0	240825.0	23145.2	-.208	89.699	-71.022	.270	39.844	24.458	21.747
1389.0	240741.2	23137.7	-.208	89.721	-70.929	.256	39.826	24.447	21.818
1390.0	240657.6	23130.2	-.208	89.742	-70.849	.223	39.811	24.436	21.889
1391.0	240574.0	23122.7	-.207	89.763	-70.752	.219	39.805	24.426	21.959
1392.0	240490.6	23115.1	-.207	89.784	-70.643	.241	39.803	24.415	22.030
1393.0	240407.3	23107.5	-.207	89.805	-70.525	.273	39.816	24.404	22.101
1394.0	240324.0	23099.9	-.207	89.826	-70.413	.308	39.836	24.393	22.172
1395.0	240240.9	23092.2	-.206	89.847	-70.351	.324	39.867	24.383	22.243
1396.0	240157.9	23084.6	-.206	89.868	-70.335	.317	39.898	24.372	22.314
1397.0	240075.0	23076.9	-.206	89.889	-70.322	.320	39.924	24.361	22.385
1398.0	239992.3	23069.2	-.205	89.910	-70.309	.340	39.948	24.350	22.456
1399.0	239909.6	23061.4	-.205	89.930	-70.325	.359	39.963	24.339	22.527
1400.0	239827.0	23053.7	-.205	89.951	-70.412	.345	39.967	24.328	22.598
1401.0	239744.5	23045.9	-.205	89.971	-70.538	.316	39.961	24.318	22.669
1402.0	239662.1	23038.1	-.205	89.991	-70.691	.288	39.945	24.307	22.740
1403.0	239579.6	23030.2	-.205	90.012	-70.859	.264	39.925	24.296	22.812
1404.0	239497.1	23022.4	-.205	90.032	-71.028	.221	39.904	24.285	22.884
1405.0	239414.6	23014.6	-.205	90.052	-71.154	.210	39.892	24.274	22.956
1406.0	239331.9	23006.7	-.206	90.072	-71.246	.231	39.876	24.263	23.028
1407.0	239249.2	22998.9	-.206	90.092	-71.353	.251	39.861	24.252	23.100
1408.0	239166.3	22991.0	-.206	90.112	-71.475	.258	39.842	24.241	23.173
1409.0	239083.2	22983.2	-.207	90.132	-71.617	.259	39.842	24.230	23.246

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1410.0	238999.9	22975.3	-.207	90.151	-71.754	.238	39.846	24.219	23.320
1411.0	238916.4	22967.4	-.208	90.171	-71.881	.227	39.854	24.208	23.394
1412.0	238832.6	22959.6	-.209	90.191	-71.991	.228	39.868	24.197	23.469
1413.0	238748.4	22951.7	-.210	90.211	-72.046	.184	39.888	24.186	23.544
1414.0	238664.0	22943.8	-.210	90.230	-72.031	.209	39.912	24.175	23.620
1415.0	238579.2	22935.8	-.211	90.250	-72.010	.234	39.925	24.163	23.696
1416.0	238494.0	22927.8	-.212	90.269	-72.006	.206	39.946	24.152	23.773
1417.0	238408.5	22919.7	-.213	90.288	-71.950	.160	39.955	24.141	23.850
1418.0	238322.6	22911.7	-.214	90.307	-71.792	.156	39.949	24.130	23.928
1419.0	238236.4	22903.6	-.215	90.326	-71.618	.189	39.933	24.118	24.006
1420.0	238149.9	22895.6	-.216	90.345	-71.472	.161	39.907	24.107	24.085
1421.0	238063.0	22887.5	-.217	90.364	-71.250	.117	39.883	24.096	24.165
1422.0	237975.8	22879.5	-.217	90.383	-70.946	.159	39.857	24.085	24.245
1423.0	237888.4	22871.3	-.218	90.402	-70.639	.205	39.835	24.073	24.326
1424.0	237800.8	22863.1	-.218	90.421	-70.366	.218	39.824	24.062	24.407
1425.0	237713.0	22854.8	-.219	90.438	-70.140	.195	39.812	24.050	24.487
1426.0	237625.1	22846.5	-.219	90.457	-69.935	.174	39.814	24.039	24.569
1427.0	237537.0	22838.3	-.219	90.475	-69.711	.163	39.827	24.027	24.651
1428.0	237448.9	22830.0	-.220	90.494	-69.477	.148	39.851	24.015	24.733
1429.0	237360.7	22821.7	-.220	90.512	-69.234	.144	39.883	24.004	24.816
1430.0	237272.5	22813.3	-.220	90.530	-68.996	.134	39.910	23.992	24.898
1431.0	237184.2	22804.9	-.220	90.549	-68.723	.144	39.931	23.981	24.981
1432.0	237096.0	22796.5	-.220	90.567	-68.399	.197	39.951	23.969	25.064
1433.0	237007.9	22787.9	-.219	90.584	-68.086	.230	39.963	23.957	25.147
1434.0	236920.0	22779.2	-.219	90.602	-67.830	.212	39.957	23.945	25.229
1435.0	236832.3	22770.5	-.218	90.620	-67.604	.181	39.940	23.933	25.312
1436.0	236744.9	22761.9	-.218	90.637	-67.372	.170	39.922	23.921	25.394
1437.0	236657.7	22753.2	-.217	90.655	-67.132	.150	39.902	23.909	25.477
1438.0	236570.7	22744.5	-.217	90.673	-66.880	.145	39.881	23.897	25.559
1439.0	236484.0	22735.9	-.216	90.690	-66.616	.148	39.859	23.885	25.642

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1440.0	236397.7	22727.2	-.215	90.708	-66.326	.168	39.849	23.873	25.724
1441.0	236311.6	22718.7	-.214	90.726	-66.015	.204	39.834	23.862	25.806
1442.0	236225.8	22710.2	-.214	90.744	-65.728	.223	39.829	23.850	25.889
1443.0	236140.4	22701.6	-.213	90.762	-65.478	.214	39.828	23.838	25.971
1444.0	236055.4	22693.0	-.212	90.780	-65.253	.214	39.867	23.827	26.052
1445.0	235970.7	22684.4	-.211	90.798	-65.082	.250	39.959	23.815	26.134
1446.0	235886.5	22675.8	-.210	90.816	-65.067	.306	40.065	23.803	26.215
1447.0	235802.7	22667.2	-.209	90.834	-65.226	.294	40.167	23.791	26.296
1448.0	235719.2	22658.5	-.208	90.852	-65.486	.217	40.266	23.780	26.376
1449.0	235636.0	22649.7	-.207	90.869	-65.708	.186	40.361	23.768	26.456
1450.0	235553.1	22640.9	-.207	90.887	-65.883	.201	40.450	23.756	26.536
1451.0	235470.5	22631.9	-.206	90.904	-66.039	.247	40.540	23.744	26.616
1452.0	235388.1	22623.0	-.206	90.921	-66.201	.298	40.622	23.732	26.695
1453.0	235305.8	22614.1	-.205	90.938	-66.439	.302	40.694	23.720	26.775
1454.0	235223.7	22605.1	-.205	90.955	-66.743	.266	40.738	23.708	26.854
1455.0	235141.6	22596.1	-.205	90.972	-67.060	.249	40.773	23.696	26.934
1456.0	235059.5	22587.1	-.205	90.989	-67.379	.240	40.811	23.683	27.013
1457.0	234977.4	22578.1	-.206	91.006	-67.719	.233	40.843	23.671	27.093
1458.0	234895.1	22569.0	-.206	91.023	-68.079	.245	40.873	23.659	27.174
1459.0	234812.5	22559.9	-.207	91.039	-68.438	.224	40.902	23.647	27.254
1460.0	234729.7	22550.8	-.208	91.055	-68.745	.154	40.929	23.635	27.335
1461.0	234646.5	22541.7	-.209	91.072	-68.926	.167	40.940	23.623	27.417
1462.0	234562.9	22532.5	-.210	91.088	-69.080	.217	40.942	23.610	27.500
1463.0	234479.0	22523.4	-.211	91.104	-69.250	.218	40.935	23.598	27.583
1464.0	234394.5	22514.5	-.212	91.125	-69.421	.165	40.935	23.586	27.667
1465.0	234309.5	22505.3	-.214	91.140	-69.548	.164	40.936	23.574	27.752
1466.0	234224.0	22496.2	-.215	91.156	-69.615	.201	40.933	23.561	27.838
1467.0	234137.9	22486.9	-.217	91.172	-69.698	.247	40.935	23.549	27.924
1468.0	234051.3	22477.7	-.218	91.187	-69.837	.229	40.946	23.537	28.012
1469.0	233964.0	22468.5	-.220	91.203	-69.996	.167	40.964	23.524	28.100

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1470.0	233876.1	22459.3	-.222	91.218	-70.088	.133	40.990	23.512	28.190
1471.0	233787.5	22450.0	-.224	91.233	-70.093	.145	41.007	23.499	28.281
1472.0	233698.1	22440.7	-.225	91.249	-70.064	.169	41.020	23.487	28.372
1473.0	233608.0	22431.4	-.227	91.264	-70.031	.175	41.031	23.474	28.465
1474.0	233517.2	22422.1	-.229	91.279	-70.011	.198	41.027	23.461	28.560
1475.0	233425.6	22412.9	-.231	91.294	-69.957	.129	41.005	23.449	28.655
1476.0	233333.2	22403.8	-.234	91.309	-69.786	.131	41.237	23.436	28.752
1477.0	233240.1	22394.5	-.235	91.324	-69.533	.244	41.783	23.424	28.850
1478.0	233146.3	22384.4	-.237	91.338	-69.425	.231	41.828	23.410	28.948
1479.0	233051.9	22374.7	-.238	91.352	-69.346	.188	41.507	23.397	29.047
1480.0	232957.0	22365.5	-.240	91.366	-69.242	.194	40.710	23.385	29.148
1481.0	232861.2	22356.7	-.243	91.382	-69.136	.206	40.425	23.372	29.252
1482.0	232764.6	22347.5	-.245	91.397	-69.099	.162	40.867	23.360	29.359
1483.0	232667.3	22337.7	-.246	91.410	-69.071	.099	41.504	23.346	29.464
1484.0	232569.4	22327.6	-.248	91.424	-68.967	.087	41.783	23.333	29.569
1485.0	232471.0	22317.4	-.249	91.436	-68.786	.124	41.573	23.319	29.675
1486.0	232372.1	22307.5	-.251	91.450	-68.602	.156	41.263	23.305	29.783
1487.0	232272.6	22297.6	-.252	91.463	-67.961	.586	41.029	23.292	29.892
1488.0	232172.7	22287.9	-.253	91.476	-67.363	.868	40.785	23.278	30.002
1489.0	232072.3	22278.1	-.254	91.489	-68.390	-.340	40.572	23.265	30.113
1490.0	231971.5	22268.5	-.256	91.503	-68.324	-.209	40.455	23.252	30.225
1491.0	231870.3	22258.8	-.257	91.515	-68.131	.156	40.407	23.239	30.338
1492.0	231768.4	22248.9	-.259	91.528	-68.202	.140	40.409	23.225	30.452
1493.0	231665.9	22239.0	-.261	91.539	-68.176	-.087	40.478	23.211	30.568
1494.0	231562.6	22229.0	-.263	91.551	-67.369	-.399	40.577	23.198	30.684
1495.0	231458.9	22218.8	-.263	91.562	-65.606	-.277	40.619	23.184	30.800
1496.0	231355.2	22208.5	-.263	91.574	-63.813	.078	40.576	23.170	30.915
1497.0	231252.0	22198.1	-.261	91.586	-62.572	.161	40.455	23.156	31.030
1498.0	231149.4	22187.7	-.259	91.598	-61.592	.115	40.289	23.142	31.144
1499.0	231047.6	22176.3	-.257	91.608	-60.651	.106	40.128	23.127	31.254

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1500.0	230946.7	22166.0	-.255	91.620	-59.754	.081	39.953	23.113	31.366
1501.0	230847.0	22155.6	-.252	91.632	-58.883	.079	39.757	23.099	31.476
1502.0	230748.5	22145.3	-.248	91.644	-58.076	.118	39.558	23.085	31.585
1503.0	230651.4	22135.1	-.245	91.657	-57.385	.149	39.365	23.071	31.692
1504.0	230555.9	22125.0	-.241	91.669	-56.871	.170	39.198	23.058	31.798
1505.0	230461.8	22114.8	-.237	91.681	-56.434	.191	39.067	23.044	31.901
1506.0	230369.5	22104.6	-.232	91.694	-56.111	.187	38.955	23.031	32.002
1507.0	230278.7	22094.5	-.228	91.707	-55.858	.168	38.853	23.018	32.102
1508.0	230189.6	22084.9	-.224	91.719	-55.604	.150	38.753	23.004	32.215
1509.0	230102.2	22074.8	-.220	91.732	-55.349	.139	38.648	22.991	32.313
1510.0	230016.5	22064.8	-.215	91.744	-55.080	.149	38.556	22.978	32.409
1511.0	229932.5	22054.8	-.211	91.757	-54.815	.196	38.471	22.965	32.502
1512.0	229850.3	22044.8	-.206	91.770	-54.660	.237	38.397	22.952	32.593
1513.0	229769.8	22034.8	-.202	91.782	-54.548	.244	38.357	22.939	32.682
1514.0	229691.2	22024.9	-.197	91.795	-54.444	.292	38.334	22.926	32.768
1515.0	229614.3	22014.8	-.193	91.808	-54.481	.349	38.339	22.913	32.851
1516.0	229539.2	22004.7	-.188	91.820	-54.606	.352	38.343	22.901	32.932
1517.0	229465.9	21994.5	-.183	91.832	-54.768	.347	38.339	22.888	33.011
1518.0	229394.3	21984.4	-.179	91.844	-54.980	.344	38.332	22.875	33.087
1519.0	229324.3	21974.3	-.175	91.856	-55.227	.332	38.321	22.862	33.160
1520.0	229256.0	21964.1	-.171	91.868	-55.486	.340	38.318	22.850	33.232
1521.0	229189.2	21953.8	-.167	91.880	-55.794	.341	38.314	22.837	33.300
1522.0	229124.0	21943.5	-.163	91.891	-56.120	.344	38.307	22.824	33.367
1523.0	229060.2	21933.0	-.159	91.902	-56.483	.350	38.301	22.811	33.430
1524.0	228998.0	21922.6	-.156	91.912	-56.868	.285	38.297	22.798	33.492
1525.0	228937.0	21912.1	-.152	91.923	-57.124	.256	38.276	22.785	33.552
1526.0	228877.4	21901.5	-.149	91.933	-57.367	.264	38.230	22.773	33.609
1527.0	228819.0	21891.0	-.146	91.943	-57.526	.194	38.166	22.760	33.665
1528.0	228761.8	21880.6	-.143	91.953	-57.573	.187	38.093	22.747	33.720
1529.0	228705.8	21870.2	-.140	91.963	-57.604	.213	38.055	22.735	33.772

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1530.0	228650.8	21859.7	-.137	91.973	-57.621	.239	38.057	22.722	33.836
1531.0	228597.0	21849.2	-.134	91.983	-57.652	.259	38.083	22.709	33.882
1532.0	228544.3	21838.6	-.131	91.993	-57.727	.264	38.115	22.697	33.926
1533.0	228492.7	21828.0	-.128	92.003	-57.832	.262	38.134	22.684	33.968
1534.0	228442.2	21817.4	-.126	92.012	-57.949	.258	38.134	22.672	34.009
1535.0	228392.7	21806.8	-.123	92.022	-58.091	.242	38.126	22.659	34.049
1536.0	228344.2	21796.1	-.120	92.031	-58.262	.236	38.115	22.647	34.087
1537.0	228296.6	21785.5	-.118	92.040	-58.460	.199	38.111	22.634	34.124
1538.0	228249.9	21774.9	-.116	92.049	-58.663	.169	38.115	22.622	34.160
1539.0	228203.9	21764.2	-.114	92.059	-58.855	.142	38.111	22.609	34.194
1540.0	228158.7	21753.5	-.112	92.067	-59.026	.128	38.105	22.597	34.228
1541.0	228114.1	21743.2	-.111	92.076	-59.161	.134	38.099	22.584	34.279
1542.0	228070.3	21732.4	-.109	92.085	-59.273	.155	38.093	22.572	34.312
1543.0	228027.0	21721.7	-.107	92.093	-59.386	.164	38.083	22.559	34.345
1544.0	227984.3	21711.0	-.106	92.102	-59.491	.189	38.088	22.547	34.377
1545.0	227942.1	21700.3	-.105	92.111	-59.599	.202	38.102	22.535	34.408
1546.0	227900.4	21689.7	-.104	92.119	-59.714	.215	38.118	22.522	34.438
1547.0	227859.1	21679.0	-.103	92.128	-59.834	.236	38.137	22.510	34.468
1548.0	227818.1	21668.4	-.102	92.136	-59.957	.253	38.155	22.498	34.497
1549.0	227777.4	21657.8	-.101	92.144	-60.071	.273	38.175	22.485	34.526
1550.0	227737.0	21647.1	-.101	92.153	-60.196	.296	38.221	22.473	34.555
1551.0	227696.7	21636.4	-.100	92.161	-60.336	.325	38.295	22.461	34.583
1552.0	227656.6	21625.7	-.100	92.169	-60.503	.338	38.385	22.448	34.611
1553.0	227616.7	21615.0	-.100	92.177	-60.711	.340	38.474	22.436	34.638
1554.0	227576.8	21604.1	-.099	92.185	-60.935	.349	38.544	22.423	34.665
1555.0	227537.0	21593.2	-.100	92.193	-61.170	.359	38.612	22.411	34.692
1556.0	227497.1	21582.2	-.100	92.200	-61.426	.364	38.687	22.398	34.719
1557.0	227457.2	21571.2	-.100	92.207	-61.720	.369	38.749	22.386	34.745
1558.0	227417.2	21560.1	-.100	92.214	-62.039	.372	38.810	22.373	34.772
1559.0	227377.0	21549.0	-.101	92.221	-62.376	.377	38.848	22.360	34.798

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1560.0	227336.4	21538.0	-.102	92.228	-62.769	.359	38.850	22.347	34.826
1561.0	227295.5	21526.9	-.103	92.235	-63.143	.312	38.844	22.335	34.854
1562.0	227254.1	21515.9	-.105	92.241	-63.437	.305	38.827	22.322	34.882
1563.0	227212.1	21504.8	-.106	92.248	-63.764	.295	38.847	22.309	34.912
1564.0	227169.4	21493.7	-.108	92.254	-64.062	.270	38.911	22.296	34.942
1565.0	227126.0	21482.5	-.110	92.259	-64.297	.231	38.981	22.283	34.974
1566.0	227081.9	21471.2	-.112	92.265	-64.515	.210	39.022	22.270	35.006
1567.0	227036.9	21459.9	-.115	92.270	-64.739	.200	39.037	22.257	35.039
1568.0	226991.1	21448.6	-.117	92.275	-64.966	.143	39.035	22.244	35.074
1569.0	226944.4	21437.3	-.120	92.280	-65.039	.107	39.014	22.231	35.110
1570.0	226896.7	21425.5	-.122	92.285	-65.004	.128	38.995	22.217	35.148
1571.0	226848.0	21414.2	-.125	92.290	-64.976	.142	38.984	22.204	35.190
1572.0	226798.3	21402.9	-.128	92.295	-64.945	.153	38.989	22.191	35.234
1573.0	226747.7	21391.5	-.130	92.299	-64.919	.151	39.012	22.177	35.279
1574.0	226696.1	21380.2	-.133	92.304	-64.901	.156	39.023	22.164	35.326
1575.0	226643.4	21368.8	-.136	92.308	-64.852	.130	39.039	22.151	35.358
1576.0	226589.8	21357.4	-.139	92.313	-64.718	.112	39.054	22.137	35.405
1577.0	226535.1	21346.1	-.141	92.317	-64.558	.089	39.056	22.124	35.454
1578.0	226479.5	21334.7	-.144	92.321	-64.400	.066	39.057	22.110	35.504
1579.0	226422.9	21323.2	-.147	92.325	-64.217	.046	39.054	22.097	35.555
1580.0	226365.4	21311.8	-.149	92.329	-63.989	.027	39.048	22.083	35.608
1581.0	226307.0	21300.4	-.152	92.333	-63.730	.018	39.045	22.070	35.663
1582.0	226247.6	21289.1	-.154	92.338	-63.421	.020	39.044	22.056	35.719
1583.0	226187.5	21277.7	-.156	92.342	-63.080	.036	39.052	22.043	35.777
1584.0	226126.5	21266.4	-.159	92.346	-62.767	.086	39.062	22.029	35.836
1585.0	226064.8	21255.0	-.161	92.350	-62.525	.084	39.082	22.015	35.896
1586.0	226002.5	21243.6	-.163	92.354	-62.259	.082	39.113	22.002	35.957
1587.0	225939.4	21232.1	-.164	92.359	-61.966	.133	39.160	21.988	36.019
1588.0	225875.6	21220.7	-.167	92.362	-61.518	-.106	39.219	21.974	36.083
1589.0	225810.8	21209.2	-.169	92.366	-59.770	-.384	39.303	21.960	36.148

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1590.0	225745.9	21197.5	-.168	92.372	-57.304	.157	39.379	21.946	36.213
1591.0	225681.7	21185.8	-.166	92.377	-56.366	.404	39.387	21.932	36.276
1592.0	225618.0	21174.2	-.165	92.383	-55.450	.849	39.345	21.918	36.339
1593.0	225555.0	21162.5	-.163	92.389	-54.506	1.441	39.271	21.904	36.401
1594.0	225492.9	21150.9	-.160	92.395	-54.754	1.239	39.246	21.890	36.461
1595.0	225431.6	21139.2	-.158	92.401	-55.229	.915	39.296	21.876	36.520
1596.0	225371.0	21127.6	-.157	92.406	-55.579	.712	39.319	21.862	36.579
1597.0	225310.8	21115.9	-.156	92.412	-55.875	.549	39.897	21.849	36.636
1598.0	225251.2	21103.3	-.154	92.416	-56.133	.444	40.644	21.834	36.690
1599.0	225192.3	21090.2	-.152	92.420	-56.364	.363	40.726	21.818	36.740
1600.0	225134.2	21077.4	-.150	92.423	-56.579	.309	40.407	21.803	36.790
1601.0	225076.5	21065.0	-.149	92.427	-56.813	.271	40.014	21.789	36.841
1602.0	225019.1	21052.8	-.149	92.431	-56.931	.234	39.751	21.775	36.892
1603.0	224962.1	21040.7	-.148	92.436	-57.287	.371	39.638	21.760	36.943
1604.0	224905.6	21028.6	-.147	92.440	-58.310	.615	39.637	21.746	36.993
1605.0	224848.9	21016.4	-.148	92.442	-59.751	.377	39.679	21.732	37.043
1606.0	224791.8	21004.2	-.150	92.445	-60.705	.224	39.707	21.717	37.094
1607.0	224734.1	20991.9	-.151	92.447	-61.351	.160	39.690	21.703	37.146
1608.0	224675.7	20979.7	-.154	92.448	-61.879	.134	39.649	21.689	37.199
1609.0	224616.4	20967.6	-.156	92.450	-62.344	.096	39.612	21.674	37.254
1610.0	224556.0	20955.9	-.160	92.450	-62.718	.055	39.587	21.661	37.312
1611.0	224494.6	20943.7	-.163	92.452	-62.979	.036	39.569	21.646	37.370
1612.0	224432.0	20931.6	-.166	92.453	-63.192	.029	39.541	21.632	37.431
1613.0	224368.1	20919.5	-.170	92.453	-63.362	.034	39.522	21.617	37.494
1614.0	224303.0	20907.5	-.173	92.454	-63.553	-.003	39.506	21.603	37.559
1615.0	224236.4	20895.5	-.177	92.455	-63.705	-.030	39.518	21.589	37.626
1616.0	224168.5	20883.6	-.182	92.456	-63.783	-.029	39.575	21.574	37.697
1617.0	224099.0	20871.6	-.186	92.456	-63.789	-.015	39.644	21.560	37.769
1618.0	224028.0	20859.6	-.190	92.457	-63.739	.016	39.711	21.545	37.844
1619.0	223955.5	20847.5	-.194	92.457	-63.684	.013	39.775	21.531	37.922



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1620.0	223881.5	20835.4	-.199	92.457	-63.584	.022	39.838	21.516	38.002
1621.0	223806.0	20823.3	-.203	92.458	-63.468	.021	39.899	21.501	38.085
1622.0	223729.0	20811.3	-.207	92.458	-63.300	.038	39.961	21.486	38.171
1623.0	223650.5	20799.1	-.211	92.458	-63.117	.034	40.025	21.472	38.259
1624.0	223570.6	20786.9	-.215	92.458	-62.915	.026	40.082	21.457	38.349
1625.0	223489.3	20774.8	-.219	92.458	-62.683	.014	40.140	21.442	38.442
1626.0	223406.6	20762.6	-.223	92.458	-62.392	.044	40.193	21.427	38.537
1627.0	223322.6	20750.4	-.227	92.458	-62.054	.080	40.233	21.412	38.635
1628.0	223237.3	20738.3	-.230	92.458	-61.716	.104	40.265	21.396	38.736
1629.0	223150.8	20726.1	-.234	92.458	-61.488	.173	40.310	21.381	38.838
1630.0	223063.1	20713.8	-.237	92.458	-61.392	.170	40.365	21.366	38.942
1631.0	222974.3	20701.5	-.240	92.458	-61.279	.175	40.425	21.351	39.049
1632.0	222884.4	20689.1	-.244	92.457	-61.167	.188	40.482	21.335	39.157
1633.0	222793.4	20676.6	-.247	92.457	-61.079	.184	40.514	21.320	39.267
1634.0	222701.4	20664.2	-.250	92.456	-60.999	.198	40.528	21.304	39.379
1635.0	222608.3	20651.7	-.253	92.455	-60.958	.184	40.524	21.289	39.493
1636.0	222514.2	20639.1	-.256	92.454	-60.923	.174	40.513	21.273	39.609
1637.0	222419.0	20625.2	-.259	92.453	-60.898	.177	40.503	21.256	39.725
1638.0	222322.8	20612.7	-.262	92.452	-60.885	.182	40.505	21.240	39.847
1639.0	222225.5	20600.1	-.265	92.450	-60.872	.197	40.532	21.224	39.971
1640.0	222127.2	20587.3	-.268	92.448	-60.880	.207	40.549	21.208	40.097
1641.0	222028.0	20574.5	-.271	92.446	-60.957	.192	40.562	21.192	40.224
1642.0	221927.7	20561.7	-.274	92.443	-60.970	.124	40.581	21.176	40.353
1643.0	221826.4	20548.8	-.277	92.440	-60.862	.081	40.588	21.159	40.484
1644.0	221724.1	20535.8	-.280	92.437	-60.570	.052	40.546	21.143	40.617
1645.0	221620.9	20522.9	-.282	92.434	-60.205	.029	40.450	21.127	40.752
1646.0	221516.9	20510.0	-.285	92.431	-59.790	.043	40.357	21.111	40.871
1647.0	221412.1	20497.2	-.287	92.429	-59.345	.052	40.274	21.094	41.008
1648.0	221306.6	20484.4	-.289	92.426	-58.888	.059	40.197	21.078	41.147
1649.0	221200.5	20473.6	-.291	92.425	-58.426	.060	40.161	21.064	41.295

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1650.0	221093.9	20460.9	-.292	92.422	-58.011	.072	40.133	21.048	41.437
1651.0	220987.0	20448.1	-.293	92.420	-57.652	.109	40.115	21.031	41.580
1652.0	220879.7	20435.3	-.294	92.417	-57.367	.148	40.117	21.015	41.724
1653.0	220772.1	20422.5	-.295	92.415	-57.186	.124	40.135	20.999	41.869
1654.0	220664.2	20409.6	-.296	92.412	-56.985	.128	40.154	20.982	42.014
1655.0	220556.1	20396.7	-.297	92.410	-56.787	.120	40.165	20.966	42.160
1656.0	220447.7	20383.8	-.298	92.407	-56.586	.125	40.166	20.949	42.307
1657.0	220339.1	20370.9	-.299	92.404	-56.365	.123	40.146	20.933	42.455
1658.0	220230.4	20357.9	-.299	92.402	-56.175	.149	40.124	20.917	42.603
1659.0	220121.6	20345.1	-.300	92.399	-56.071	.202	40.120	20.900	42.752
1660.0	220012.6	20332.1	-.300	92.397	-56.084	.240	40.127	20.884	42.902
1661.0	219903.5	20319.1	-.301	92.394	-56.232	.270	40.158	20.867	43.052
1662.0	219794.2	20306.0	-.302	92.391	-56.470	.251	40.190	20.850	43.202
1663.0	219684.6	20287.5	-.303	92.574	-56.738	.338	40.366	20.828	43.330
1664.0	219574.8	20272.5	-.304	92.572	-57.027	.295	40.368	20.810	43.474
1665.0	219464.6	20257.5	-.306	92.571	-57.222	.252	40.356	20.791	43.619
1666.0	219353.9	20242.4	-.307	92.569	-57.347	.245	40.345	20.772	43.765
1667.0	219242.8	20227.4	-.309	92.567	-57.496	.243	40.332	20.754	43.912
1668.0	219131.2	20212.3	-.310	92.564	-57.695	.209	40.333	20.735	44.061
1669.0	219019.1	20197.1	-.312	92.562	-57.901	.180	40.343	20.716	44.210
1670.0	218906.4	20181.8	-.314	92.559	-58.107	.140	40.366	20.697	44.361
1671.0	218793.0	20166.5	-.316	92.556	-58.314	.089	40.379	20.678	44.513
1672.0	218678.8	20151.1	-.319	92.552	-58.378	.052	40.390	20.659	44.667
1673.0	218564.0	20135.7	-.321	92.549	-58.348	.071	40.388	20.640	44.822
1674.0	218448.4	20120.2	-.324	92.545	-58.310	.077	40.370	20.621	44.978
1675.0	218332.1	20104.7	-.326	92.541	-58.279	.068	40.351	20.602	45.137
1676.0	218215.1	20089.3	-.328	92.537	-58.240	.064	40.342	20.582	45.298
1677.0	218097.3	20073.8	-.331	92.533	-58.175	.050	40.355	20.563	45.460
1678.0	217978.7	20058.2	-.333	92.529	-58.112	.034	40.381	20.544	45.624
1679.0	217859.4	20042.5	-.336	92.525	-58.018	.015	40.389	20.524	45.789

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1680.0	217739.4	20026.7	-.338	92.520	-57.875	.017	40.403	20.505	45.956
1681.0	217618.7	20011.0	-.340	92.515	-57.688	.012	40.399	20.485	46.125
1682.0	217497.5	19995.1	-.342	92.510	-57.503	-.016	40.383	20.465	46.294
1683.0	217375.7	19979.2	-.344	92.505	-57.265	-.023	40.367	20.445	46.466
1684.0	217253.4	19963.2	-.345	92.500	-56.989	-.042	40.355	20.426	46.638
1685.0	217130.7	19947.1	-.346	92.495	-56.649	-.050	40.359	20.406	46.811
1686.0	217007.7	19930.9	-.347	92.489	-56.265	-.023	40.386	20.385	46.985
1687.0	216884.5	19914.7	-.348	92.484	-55.922	.003	40.396	20.365	47.159
1688.0	216761.2	19898.4	-.349	92.478	-55.593	.015	40.381	20.345	47.334
1689.0	216638.0	19882.0	-.349	92.473	-55.202	.024	40.325	20.325	47.509
1690.0	216514.8	19865.7	-.349	92.467	-54.886	.071	40.263	20.305	47.685
1691.0	216391.8	19849.4	-.348	92.462	-54.644	.096	40.189	20.284	47.860
1692.0	216269.0	19844.9	-.348	92.400	-54.358	.084	40.075	20.276	48.093
1693.0	216146.5	19829.0	-.347	92.393	-54.035	.125	40.048	20.257	48.271
1694.0	216024.4	19813.0	-.346	92.386	-53.707	.157	40.038	20.237	48.448
1695.0	215902.9	19796.9	-.345	92.378	-53.384	.175	40.008	20.217	48.624
1696.0	215782.0	19780.8	-.343	92.371	-53.058	.215	39.977	20.197	48.799
1697.0	215661.8	19764.7	-.341	92.363	-52.872	.229	39.930	20.177	48.973
1698.0	215542.3	19748.5	-.339	92.356	-52.709	.235	39.882	20.157	49.145
1699.0	215423.8	19732.2	-.337	92.348	-52.547	.249	39.832	20.137	49.316
1700.0	215306.1	19715.9	-.334	92.340	-52.416	.266	39.775	20.117	49.484
1701.0	215189.4	19699.6	-.332	92.331	-52.306	.273	39.723	20.097	49.652
1702.0	215073.6	19683.3	-.330	92.323	-52.210	.316	39.680	20.077	49.818
1703.0	214958.8	19667.1	-.327	92.315	-52.248	.360	39.645	20.057	49.982
1704.0	214844.9	19650.8	-.325	92.306	-52.416	.342	39.616	20.038	50.145
1705.0	214731.8	19634.9	-.323	92.301	-52.613	.333	39.595	20.018	50.307
1706.0	214619.5	19618.6	-.321	92.292	-52.841	.327	39.584	19.998	50.467
1707.0	214507.9	19602.3	-.319	92.283	-53.090	.332	39.589	19.979	50.625
1708.0	214397.0	19585.9	-.318	92.273	-53.382	.337	39.602	19.959	50.783
1709.0	214286.6	19569.5	-.317	92.263	-53.710	.346	39.613	19.939	50.938

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1710.0	214176.7	19553.0	-.316	92.252	-54.085	.347	39.627	19.919	51.094
1711.0	214067.1	19536.6	-.315	92.241	-54.508	.326	39.625	19.899	51.248
1712.0	213957.8	19520.1	-.315	92.230	-54.952	.334	39.604	19.879	51.402
1713.0	213848.5	19503.7	-.315	92.218	-55.401	.297	39.594	19.859	51.557
1714.0	213739.1	19487.2	-.316	92.206	-55.713	.270	39.599	19.840	51.712
1715.0	213629.6	19470.6	-.317	92.193	-55.995	.263	39.610	19.820	51.867
1716.0	213519.7	19454.1	-.318	92.180	-56.323	.236	39.621	19.800	52.023
1717.0	213409.5	19437.4	-.320	92.167	-56.619	.198	39.626	19.780	52.180
1718.0	213298.9	19420.8	-.322	92.153	-56.828	.182	39.636	19.760	52.338
1719.0	213187.7	19404.1	-.324	92.139	-57.024	.166	39.653	19.739	52.498
1720.0	213075.9	19387.3	-.326	92.125	-57.232	.143	39.675	19.719	52.658
1721.0	212963.5	19370.5	-.328	92.110	-57.417	.120	39.699	19.699	52.820
1722.0	212850.5	19353.6	-.330	92.094	-57.547	.119	39.718	19.679	52.984
1723.0	212736.6	19336.7	-.333	92.079	-57.645	.122	39.734	19.658	53.149
1724.0	212622.1	19319.8	-.335	92.063	-57.738	.108	39.748	19.638	53.316
1725.0	212506.8	19302.7	-.338	92.047	-57.801	.102	39.757	19.617	53.485
1726.0	212390.6	19285.7	-.341	92.031	-57.807	.111	39.767	19.597	53.656
1727.0	212273.6	19268.7	-.344	92.014	-57.776	.142	39.772	19.576	53.830
1728.0	212155.8	19251.6	-.347	91.997	-57.737	.145	39.788	19.555	54.005
1729.0	212037.1	19234.4	-.350	91.980	-57.692	.147	39.812	19.535	54.183
1730.0	211917.5	19217.3	-.353	91.963	-57.639	.142	39.837	19.514	54.362
1731.0	211797.2	19200.0	-.355	91.945	-57.555	.153	39.865	19.493	54.544
1732.0	211676.0	19182.7	-.358	91.928	-57.438	.169	39.897	19.472	54.727
1733.0	211554.2	19165.3	-.361	91.909	-57.325	.181	39.934	19.451	54.912
1734.0	211431.6	19148.6	-.363	91.889	-57.199	.189	39.963	19.431	55.103
1735.0	211308.3	19130.9	-.365	91.870	-57.068	.188	39.979	19.409	55.291
1736.0	211184.5	19113.0	-.367	91.851	-56.919	.198	39.982	19.388	55.479
1737.0	211060.4	19095.0	-.368	91.831	-56.753	.215	39.987	19.366	55.667
1738.0	210935.9	19076.9	-.370	91.811	-56.589	.218	40.001	19.344	55.857
1739.0	210811.1	19058.8	-.371	91.791	-56.426	.220	40.000	19.322	56.047

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1740.0	210686.1	19040.6	-.372	91.770	-56.272	.211	39.954	19.300	56.238
1741.0	210560.9	19022.4	-.373	91.750	-56.098	.207	39.882	19.278	56.430
1742.0	210435.4	19004.4	-.374	91.729	-55.907	.218	39.813	19.257	56.623
1743.0	210309.7	18986.4	-.375	91.709	-55.714	.231	39.783	19.235	56.818
1744.0	210183.8	18968.2	-.376	91.689	-55.512	.239	39.789	19.213	57.013
1745.0	210057.8	18950.0	-.376	91.668	-55.310	.252	39.807	19.191	57.209
1746.0	209931.9	18931.7	-.377	91.647	-55.229	.291	39.818	19.169	57.403
1747.0	209806.0	18913.2	-.377	91.625	-55.250	.327	39.814	19.147	57.598
1748.0	209680.1	18894.7	-.377	91.603	-55.324	.323	39.801	19.125	57.792
1749.0	209554.3	18876.1	-.378	91.581	-55.464	.298	39.802	19.103	57.987
1750.0	209428.6	18857.5	-.378	91.558	-55.632	.272	39.802	19.080	58.181
1751.0	209302.8	18838.7	-.379	91.535	-55.888	.228	39.802	19.058	58.375
1752.0	209176.7	18820.0	-.381	91.511	-56.020	.072	39.802	19.035	58.570
1753.0	209050.1	18801.2	-.383	91.487	-54.941	-.204	39.827	19.013	58.767
1754.0	208923.5	18782.3	-.381	91.465	-52.856	.206	39.837	18.990	58.963
1755.0	208797.9	18763.3	-.378	91.443	-52.262	.294	39.803	18.968	59.157
1756.0	208673.3	18744.3	-.375	91.421	-51.321	.758	39.747	18.945	59.348
1757.0	208550.1	18725.3	-.371	91.401	-49.885	1.840	39.666	18.922	59.537
1758.0	208428.4	18706.5	-.367	91.380	-50.339	1.519	39.684	18.900	59.723
1759.0	208308.1	18687.5	-.363	91.359	-51.070	.961	39.777	18.878	59.905
1760.0	208189.1	18669.3	-.360	91.333	-51.471	.690	39.743	18.856	60.089
1761.0	208071.0	18650.5	-.358	91.311	-51.790	.485	40.219	18.834	60.267
1762.0	207953.8	18630.3	-.355	91.288	-52.041	.383	40.863	18.810	60.434
1763.0	207837.8	18609.7	-.352	91.263	-52.311	.281	40.794	18.786	60.595
1764.0	207722.9	18589.6	-.350	91.239	-52.511	.243	40.491	18.763	60.758
1765.0	207608.8	18569.6	-.348	91.214	-52.738	.223	40.304	18.739	60.919
1766.0	207495.4	18549.7	-.346	91.190	-52.967	.161	40.211	18.716	61.079
1767.0	207382.5	18529.9	-.345	91.165	-53.167	.278	40.132	18.693	61.239
1768.0	207270.3	18510.1	-.343	91.140	-54.115	.343	40.087	18.670	61.396
1769.0	207158.4	18490.1	-.344	91.114	-55.372	.292	40.097	18.647	61.552

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1770.0	207046.3	18469.9	-.345	91.085	-56.481	.199	40.106	18.624	61.708
1771.0	206933.8	18449.7	-.348	91.056	-57.369	.105	40.091	18.600	61.864
1772.0	206820.4	18429.4	-.351	91.027	-58.014	.050	40.054	18.577	62.022
1773.0	206706.0	18409.1	-.355	90.996	-58.456	.059	40.022	18.553	62.183
1774.0	206590.5	18388.8	-.359	90.966	-58.876	.087	40.005	18.529	62.347
1775.0	206473.8	18368.4	-.364	90.934	-59.311	.072	40.001	18.506	62.513
1776.0	206355.6	18347.9	-.369	90.902	-59.626	.012	39.999	18.482	62.684
1777.0	206235.8	18327.4	-.375	90.870	-59.812	.022	39.984	18.458	62.858
1778.0	206114.4	18306.9	-.380	90.837	-59.982	.023	39.975	18.434	63.037
1779.0	205991.2	18286.4	-.387	90.805	-60.144	.020	39.968	18.410	63.221
1780.0	205866.2	18265.9	-.393	90.772	-60.321	-.005	39.962	18.386	63.409
1781.0	205739.3	18245.4	-.400	90.738	-60.483	-.041	39.957	18.362	63.603
1782.0	205610.3	18224.8	-.407	90.705	-60.560	-.033	39.975	18.338	63.803
1783.0	205479.3	18204.1	-.414	90.671	-60.572	.004	40.020	18.314	64.006
1784.0	205346.3	18183.4	-.421	90.636	-60.564	.022	40.060	18.289	64.216
1785.0	205211.3	18162.5	-.427	90.602	-60.524	.054	40.101	18.264	64.430
1786.0	205074.3	18141.4	-.434	90.566	-60.472	.088	40.148	18.240	64.649
1787.0	204935.3	18119.8	-.441	90.525	-60.431	.106	40.188	18.214	64.870
1788.0	204794.5	18098.5	-.448	90.490	-60.406	.125	40.224	18.189	65.098
1789.0	204651.6	18077.1	-.454	90.454	-60.390	.133	40.265	18.164	65.332
1790.0	204506.9	18055.5	-.461	90.417	-60.413	.129	40.294	18.138	65.569
1791.0	204360.4	18033.7	-.467	90.380	-60.481	.102	40.319	18.112	65.811
1792.0	204212.1	18011.6	-.474	90.342	-60.563	.071	40.340	18.086	66.056
1793.0	204062.0	17989.4	-.480	90.303	-60.607	.071	40.357	18.060	66.305
1794.0	203910.1	17967.1	-.486	90.264	-60.556	.052	40.349	18.033	66.559
1795.0	203756.4	17944.7	-.493	90.225	-60.413	.015	40.325	18.007	66.818
1796.0	203601.0	17922.1	-.499	90.186	-60.165	-.009	40.303	17.980	67.081
1797.0	203444.0	17899.4	-.504	90.146	-59.765	.005	40.265	17.953	67.348
1798.0	203285.6	17876.6	-.509	90.106	-59.330	.020	40.208	17.926	67.619
1799.0	203126.1	17853.8	-.514	90.067	-58.871	.023	40.145	17.899	67.894

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1800.0	202965.4	17830.9	-.517	90.027	-58.353	.045	40.098	17.872	68.172
1801.0	202804.0	17808.0	-.521	89.988	-57.860	.085	40.063	17.845	68.453
1802.0	202641.9	17785.0	-.523	89.949	-57.476	.111	40.051	17.817	68.736
1803.0	202479.3	17761.9	-.525	89.909	-57.236	.139	40.045	17.790	69.020
1804.0	202316.3	17738.6	-.527	89.870	-57.067	.120	40.036	17.762	69.304
1805.0	202153.1	17715.1	-.529	89.830	-56.869	.118	40.029	17.734	69.588
1806.0	201989.7	17691.4	-.529	89.789	-56.680	.121	40.010	17.706	69.872
1807.0	201826.5	17667.4	-.530	89.748	-56.496	.126	39.956	17.678	70.153
1808.0	201663.4	17641.9	-.530	89.703	-56.339	.123	39.889	17.648	70.423
1809.0	201500.6	17618.1	-.530	89.662	-56.155	.085	39.818	17.620	70.705
1810.0	201337.8	17594.2	-.530	89.621	-55.793	.070	39.745	17.592	70.988
1811.0	201175.4	17570.5	-.530	89.581	-55.429	.118	39.688	17.564	71.272
1812.0	201013.4	17546.8	-.529	89.541	-55.160	.148	39.638	17.536	71.555
1813.0	200851.8	17523.0	-.528	89.501	-55.018	.201	39.628	17.508	71.837
1814.0	200690.8	17499.2	-.527	89.461	-55.116	.211	39.645	17.480	72.117
1815.0	200530.4	17475.2	-.527	89.420	-55.318	.192	39.644	17.452	72.395
1816.0	200370.5	17450.9	-.525	89.379	-55.540	.183	39.623	17.424	72.670
1817.0	200211.2	17426.4	-.524	89.336	-55.836	.171	39.609	17.395	72.942
1818.0	200052.5	17401.8	-.524	89.293	-56.103	.137	39.601	17.366	73.211
1819.0	199894.1	17377.1	-.523	89.249	-56.334	.088	39.586	17.337	73.478
1820.0	199736.2	17352.3	-.523	89.205	-56.508	.036	39.550	17.309	73.744
1821.0	199578.4	17327.6	-.523	89.160	-56.489	.024	39.481	17.280	74.011
1822.0	199420.9	17303.1	-.524	89.117	-56.398	.072	39.404	17.251	74.280
1823.0	199263.4	17278.9	-.524	89.074	-56.340	.099	39.365	17.223	74.550
1824.0	199106.0	17254.6	-.525	89.031	-56.301	.127	39.361	17.195	74.821
1825.0	198948.7	17230.1	-.525	88.987	-56.352	.162	39.392	17.166	75.090
1826.0	198791.6	17205.4	-.526	88.943	-56.657	.161	39.444	17.138	75.356
1827.0	198634.6	17180.5	-.526	88.898	-57.015	.141	39.493	17.109	75.621
1828.0	198477.6	17155.4	-.528	88.852	-57.392	.118	39.524	17.080	75.885
1829.0	198320.4	17128.9	-.529	88.810	-57.716	.066	39.554	17.050	76.137

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 \* ST11BET USING FLAIR11(4/13/84), INERTIAL-BT11A12, NJ0124 DYN. DATA. PAGE 62 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1830.0	198163.0	17103.5	-.531	88.763	-57.877	.060	39.542	17.020	76.399
1831.0	198005.5	17077.9	-.532	88.714	-57.949	.081	39.527	16.991	76.661
1832.0	197847.9	17052.2	-.534	88.665	-58.032	.096	39.516	16.961	76.923
1833.0	197690.0	17026.6	-.535	88.616	-58.112	.076	39.503	16.932	77.186
1834.0	197532.0	17000.9	-.537	88.567	-58.068	.066	39.476	16.902	77.449
1835.0	197373.7	16975.3	-.539	88.517	-57.945	.086	39.446	16.872	77.714
1836.0	197215.2	16949.7	-.540	88.468	-57.818	.087	39.422	16.843	77.980
1837.0	197056.4	16924.1	-.542	88.419	-57.669	.088	39.409	16.814	78.248
1838.0	196897.6	16898.6	-.543	88.369	-57.492	.100	39.389	16.784	78.516
1839.0	196738.7	16873.0	-.544	88.320	-57.275	.122	39.392	16.755	78.785
1840.0	196579.7	16847.5	-.545	88.271	-57.227	.156	39.413	16.725	79.054
1841.0	196420.8	16821.9	-.546	88.221	-57.225	.181	39.437	16.696	79.323
1842.0	196261.9	16796.2	-.547	88.171	-57.335	.196	39.463	16.666	79.591
1843.0	196102.9	16770.4	-.548	88.121	-57.522	.207	39.490	16.637	79.859
1844.0	195943.8	16744.5	-.550	88.069	-57.716	.215	39.517	16.607	80.126
1845.0	195784.6	16718.5	-.551	88.018	-57.957	.206	39.547	16.577	80.393
1846.0	195625.2	16692.4	-.553	87.965	-58.235	.194	39.566	16.547	80.660
1847.0	195465.4	16666.3	-.556	87.912	-58.528	.185	39.587	16.517	80.929
1848.0	195305.0	16640.2	-.559	87.859	-58.843	.170	39.620	16.488	81.198
1849.0	195144.0	16614.4	-.563	87.815	-59.162	.160	39.646	16.458	81.474
1850.0	194982.2	16588.1	-.567	87.760	-59.489	.155	39.666	16.428	81.748
1851.0	194819.5	16561.8	-.571	87.705	-59.816	.141	39.696	16.398	82.024
1852.0	194655.7	16535.3	-.576	87.648	-60.142	.129	39.718	16.367	82.303
1853.0	194490.7	16508.7	-.582	87.590	-60.438	.111	39.755	16.337	82.584
1854.0	194324.4	16481.9	-.587	87.532	-60.691	.095	39.782	16.306	82.868
1855.0	194156.8	16455.0	-.593	87.472	-60.938	.085	39.799	16.275	83.156
1856.0	193987.8	16427.8	-.599	87.411	-61.173	.071	39.812	16.244	83.445
1857.0	193817.3	16400.4	-.605	87.348	-61.322	.031	39.830	16.213	83.738
1858.0	193645.4	16372.9	-.612	87.284	-61.235	-.010	39.838	16.181	84.034
1859.0	193472.2	16345.2	-.617	87.220	-60.932	-.003	39.813	16.150	84.334



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1860.0	193297.7	16317.7	-.623	87.156	-60.578	-.010	39.780	16.118	84.639
1861.0	193122.1	16290.2	-.628	87.092	-60.187	-.020	39.745	16.087	84.949
1862.0	192945.6	16262.7	-.632	87.029	-59.718	-.020	39.712	16.055	85.263
1863.0	192768.3	16235.4	-.635	86.965	-59.198	.023	39.698	16.024	85.581
1864.0	192590.5	16207.9	-.638	86.901	-58.887	.053	39.704	15.992	85.900
1865.0	192412.2	16180.5	-.641	86.837	-58.647	.049	39.688	15.961	86.221
1866.0	192233.7	16153.1	-.643	86.773	-58.412	.072	39.686	15.930	86.544
1867.0	192055.0	16125.7	-.645	86.708	-58.239	.112	39.703	15.898	86.867
1868.0	191876.1	16099.7	-.646	86.642	-58.193	.142	39.719	15.868	87.207
1869.0	191697.2	16072.2	-.648	86.577	-58.286	.165	39.735	15.837	87.531
1870.0	191518.0	16044.5	-.650	86.511	-58.428	.183	39.767	15.805	87.854
1871.0	191338.6	16016.7	-.652	86.444	-58.618	.203	39.792	15.773	88.177
1872.0	191158.9	15988.8	-.655	86.376	-58.856	.197	39.825	15.741	88.500
1873.0	190978.8	15960.8	-.658	86.307	-59.119	.201	39.851	15.709	88.823
1874.0	190798.1	15932.6	-.661	86.237	-59.399	.219	39.884	15.677	89.146
1875.0	190616.9	15904.1	-.665	86.166	-59.705	.233	39.917	15.645	89.469
1876.0	190435.0	15875.2	-.669	86.093	-60.097	.234	39.946	15.612	89.790
1877.0	190252.3	15846.3	-.673	86.019	-60.459	.208	39.968	15.579	90.112
1878.0	190068.7	15817.3	-.678	85.944	-60.663	.200	39.972	15.546	90.438
1879.0	189884.0	15788.2	-.684	85.869	-60.833	.216	39.946	15.513	90.767
1880.0	189698.1	15759.1	-.690	85.793	-60.991	.236	39.926	15.480	91.100
1881.0	189511.0	15730.0	-.696	85.716	-61.167	.257	39.926	15.447	91.437
1882.0	189322.5	15700.7	-.702	85.637	-61.401	.239	39.936	15.413	91.776
1883.0	189132.7	15671.2	-.709	85.558	-61.641	.224	39.950	15.380	92.119
1884.0	188941.4	15641.6	-.716	85.478	-61.893	.204	39.962	15.346	92.466
1885.0	188748.5	15611.9	-.724	85.397	-62.121	.185	39.977	15.313	92.819
1886.0	188553.8	15583.0	-.732	85.311	-62.266	.208	39.981	15.280	93.187
1887.0	188357.5	15552.9	-.740	85.228	-62.416	.207	39.978	15.245	93.547
1888.0	188159.4	15522.7	-.748	85.143	-62.580	.175	39.992	15.211	93.912
1889.0	187959.4	15492.3	-.757	85.058	-62.681	.159	39.992	15.176	94.282

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1890.0	187757.5	15461.7	-.766	84.972	-62.644	.143	39.985	15.142	94.657
1891.0	187553.7	15431.1	-.774	84.885	-62.536	.118	39.973	15.107	95.039
1892.0	187348.1	15400.5	-.783	84.798	-62.419	.088	39.954	15.072	95.428
1893.0	187140.7	15369.8	-.791	84.711	-62.227	.072	39.938	15.037	95.823
1894.0	186931.5	15338.9	-.799	84.623	-61.970	.051	39.932	15.002	96.223
1895.0	186720.7	15308.0	-.807	84.535	-61.503	.000	39.978	14.967	96.629
1896.0	186508.5	15276.7	-.813	84.446	-60.674	.002	40.058	14.931	97.036
1897.0	186295.5	15245.1	-.817	84.357	-59.709	.027	40.120	14.895	97.442
1898.0	186082.3	15213.2	-.819	84.269	-58.698	.015	40.156	14.859	97.846
1899.0	185869.3	15181.3	-.819	84.182	-57.590	.015	40.158	14.823	98.248
1900.0	185657.3	15149.1	-.816	84.095	-56.358	.045	40.153	14.786	98.644
1901.0	185446.9	15116.5	-.810	84.008	-55.089	.121	40.145	14.749	99.029
1902.0	185239.1	15083.2	-.800	83.918	-53.867	.171	40.132	14.712	99.395
1903.0	185034.8	15049.8	-.788	83.832	-52.709	.210	40.099	14.675	99.746
1904.0	184834.3	15016.4	-.775	83.747	-51.443	.088	40.047	14.638	100.082
1905.0	184638.2	14982.9	-.758	83.663	-49.217	.045	39.948	14.600	100.398
1906.0	184448.0	14949.2	-.734	83.584	-46.775	.292	39.833	14.563	100.691
1907.0	184264.9	14915.7	-.707	83.508	-43.475	.360	39.715	14.526	100.956
1908.0	184089.4	14882.3	-.679	83.433	-44.722	.312	39.565	14.490	101.193
1909.0	183921.5	14849.2	-.651	83.360	-44.128	.313	39.426	14.454	101.402
1910.0	183761.5	14816.3	-.623	83.288	-43.878	.311	39.315	14.418	101.584
1911.0	183609.1	14783.6	-.594	83.215	-43.920	.352	39.229	14.383	101.735
1912.0	183464.5	14750.8	-.566	83.142	-44.428	.384	39.178	14.347	101.854
1913.0	183327.4	14717.9	-.539	83.067	-45.363	.372	39.145	14.312	101.942
1914.0	183197.1	14685.0	-.515	82.990	-46.418	.301	39.106	14.277	102.000
1915.0	183073.3	14652.2	-.493	82.910	-47.430	.231	39.050	14.243	102.033
1916.0	182955.1	14619.6	-.473	82.830	-48.358	.203	38.978	14.208	102.046
1917.0	182842.0	14587.2	-.455	82.748	-49.275	.165	38.910	14.174	102.039
1918.0	182733.5	14554.9	-.439	82.664	-50.090	.179	38.873	14.140	102.015
1919.0	182629.0	14522.6	-.426	82.579	-50.902	.180	38.863	14.107	101.973

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJO124 DYN. DATA. PAGE 65 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1920.0	182528.2	14490.3	-.413	82.492	-51.675	.212	38.860	14.073	101.917
1921.0	182430.3	14458.1	-.404	82.404	-52.299	.064	38.869	14.039	101.848
1922.0	182334.9	14425.8	-.395	82.314	-51.558	-.141	38.897	14.006	101.768
1923.0	182242.6	14393.4	-.381	82.228	-49.828	.288	38.906	13.972	101.672
1924.0	182154.4	14360.9	-.366	82.143	-49.621	.202	38.898	13.939	101.560
1925.0	182070.2	14328.5	-.350	82.058	-48.420	.934	38.883	13.906	101.430
1926.0	181990.7	14296.1	-.331	81.977	-47.536	1.654	38.862	13.872	101.310
1927.0	181915.9	14261.9	-.314	81.893	-48.790	.749	38.920	13.838	101.101
1928.0	181845.4	14229.5	-.299	81.808	-49.253	.392	38.955	13.805	100.899
1929.0	181778.9	14197.1	-.284	81.722	-49.454	.290	38.980	13.772	100.685
1930.0	181715.9	14164.4	-.271	81.636	-49.621	.247	39.911	13.739	100.447
1931.0	181657.1	14129.0	-.253	81.544	-49.801	.201	40.170	13.703	100.208
1932.0	181602.3	14095.1	-.239	81.455	-49.907	.197	39.818	13.669	99.937
1933.0	181551.2	14061.6	-.226	81.366	-49.971	.217	39.578	13.635	99.659
1934.0	181503.3	14028.7	-.213	81.278	-50.034	.231	39.456	13.602	99.374
1935.0	181458.6	13995.8	-.201	81.189	-50.083	.244	39.415	13.569	99.079
1936.0	181416.9	13963.2	-.189	81.101	-50.203	.438	39.372	13.537	98.806
1937.0	181378.3	13930.8	-.179	81.014	-51.773	.650	39.382	13.504	98.486
1938.0	181341.5	13898.4	-.175	80.921	-54.180	.407	39.430	13.472	98.169
1939.0	181305.0	13866.0	-.177	80.824	-56.275	.095	39.457	13.440	97.858
1940.0	181267.7	13833.7	-.183	80.725	-57.495	.130	39.438	13.408	97.508
1941.0	181229.0	13801.6	-.191	80.625	-58.646	.148	39.429	13.376	97.200
1942.0	181188.1	13769.7	-.202	80.524	-59.688	.111	39.430	13.344	96.903
1943.0	181144.4	13737.9	-.216	80.422	-60.515	.153	39.434	13.312	96.618
1944.0	181097.2	13706.2	-.232	80.318	-61.363	.142	39.452	13.281	96.346
1945.0	181046.2	13674.6	-.250	80.214	-62.159	.143	39.479	13.249	96.091
1946.0	180990.7	13643.2	-.271	80.110	-62.926	.121	39.533	13.217	95.853
1947.0	180930.2	13611.7	-.294	80.004	-63.592	.088	39.613	13.186	95.633
1948.0	180864.4	13580.2	-.318	79.897	-64.149	.076	39.699	13.154	95.450
1949.0	180792.8	13548.7	-.344	79.790	-64.613	.074	39.785	13.122	95.249

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1950.0	180715.2	13517.1	-.371	79.682	-64.950	.057	39.874	13.089	95.087
1951.0	180631.3	13485.5	-.399	79.573	-65.148	.020	39.962	13.057	94.947
1952.0	180541.1	13453.9	-.427	79.464	-65.167	.039	40.043	13.024	94.829
1953.0	180444.4	13422.2	-.456	79.355	-65.091	.061	40.121	12.992	94.733
1954.0	180341.2	13390.4	-.485	79.245	-64.960	.073	40.202	12.959	94.657
1955.0	180231.7	13358.6	-.514	79.135	-64.761	.072	40.280	12.926	94.602
1956.0	180116.0	13326.5	-.541	79.024	-64.463	.091	40.352	12.892	94.565
1957.0	179994.2	13294.3	-.568	78.913	-64.103	.093	40.439	12.859	94.547
1958.0	179866.6	13262.1	-.595	78.803	-63.644	.102	40.558	12.825	94.547
1959.0	179733.4	13229.7	-.620	78.692	-63.111	.119	40.620	12.791	94.565
1960.0	179594.8	13197.2	-.645	78.581	-62.524	.081	40.651	12.756	94.600
1961.0	179451.2	13164.7	-.668	78.470	-61.714	.083	40.648	12.722	94.650
1962.0	179303.1	13131.8	-.688	78.359	-60.761	.110	40.646	12.687	94.710
1963.0	179151.0	13098.9	-.705	78.249	-59.739	.126	40.661	12.652	94.782
1964.0	178995.7	13065.9	-.721	78.139	-58.598	.103	40.671	12.617	94.864
1965.0	178837.4	13033.0	-.734	78.031	-57.085	.065	40.640	12.582	94.956
1966.0	178677.2	12999.9	-.743	77.929	-55.408	.160	40.610	12.547	95.050
1967.0	178515.8	12967.1	-.748	77.825	-54.045	.233	40.539	12.512	95.152
1968.0	178354.0	12934.4	-.751	77.723	-53.007	.240	40.462	12.477	95.255
1969.0	178192.2	12901.8	-.752	77.622	-52.039	.281	40.392	12.442	95.358
1970.0	178030.9	12869.3	-.752	77.523	-51.317	.297	40.326	12.408	95.460
1971.0	177870.2	12837.0	-.750	77.424	-50.761	.322	40.262	12.373	95.561
1972.0	177710.4	12804.7	-.748	77.326	-50.444	.329	40.221	12.339	95.658
1973.0	177551.4	12772.7	-.748	77.227	-49.888	-.000	40.206	12.305	95.754
1974.0	177392.9	12740.7	-.746	77.129	-47.484	-.284	40.227	12.271	95.846
1975.0	177236.3	12708.4	-.735	77.038	-43.026	-.002	40.252	12.236	95.927
1976.0	177083.7	12676.2	-.714	76.957	-38.128	.264	40.245	12.202	95.992
1977.0	176937.1	12643.8	-.685	76.887	-33.387	.280	40.205	12.168	96.033
1978.0	176798.3	12611.4	-.647	76.827	-28.568	.274	40.166	12.134	96.042
1979.0	176669.0	12578.8	-.603	76.779	-23.704	.247	40.136	12.100	96.013

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
1980.0	176550.3	12546.1	-.553	76.743	-18.798	.230	40.099	12.067	95.943
1981.0	176443.5	12513.4	-.498	76.720	-13.875	.180	40.071	12.033	95.829
1982.0	176349.2	12480.6	-.440	76.710	-8.843	.184	40.041	12.000	95.666
1983.0	176268.1	12448.0	-.380	76.716	-3.739	.203	40.007	11.966	95.472
1984.0	176200.1	12415.4	-.321	76.735	1.401	.208	39.969	11.934	95.171
1985.0	176145.1	12383.2	-.263	76.770	6.612	.223	39.934	11.902	94.940
1986.0	176102.4	12351.0	-.207	76.819	11.787	.204	39.931	11.870	94.553
1987.0	176071.6	12318.6	-.154	76.883	16.923	.174	39.953	11.838	94.188
1988.0	176051.7	12286.3	-.105	76.960	22.099	.166	39.975	11.807	93.754
1989.0	176041.5	12254.0	-.063	77.052	27.352	.172	39.990	11.776	93.296
1990.0	176039.5	12221.7	-.029	77.157	32.480	.171	39.993	11.745	92.813
1991.0	176043.9	12189.5	-.003	77.273	37.620	.129	40.009	11.714	92.310
1992.0	176052.7	12157.5	.013	77.401	42.850	.145	40.023	11.683	91.795
1993.0	176063.7	12125.7	.018	77.540	48.076	.183	40.046	11.653	91.277
1994.0	176074.5	12093.9	.012	77.687	53.178	.160	40.074	11.622	90.762
1995.0	176082.5	12062.3	-.007	77.844	58.169	.206	40.131	11.592	90.262
1996.0	176084.8	12030.7	-.040	78.009	62.202	.398	40.205	11.562	89.782
1997.0	176079.2	11999.2	-.081	78.177	64.576	.467	40.240	11.532	89.332
1998.0	176064.6	11967.8	-.125	78.347	65.928	.420	40.272	11.501	88.913
1999.0	176040.3	11936.5	-.173	78.518	66.983	.372	40.339	11.471	88.530
2000.0	176005.7	11905.4	-.224	78.689	67.863	.374	40.446	11.440	88.183
2001.0	175960.4	11874.3	-.277	78.862	68.484	.376	40.603	11.409	87.873
2002.0	175903.9	11842.8	-.331	79.035	68.933	.361	40.788	11.378	87.609
2003.0	175836.0	11811.3	-.387	79.210	69.242	.387	40.951	11.346	87.350
2004.0	175756.7	11779.8	-.444	79.385	69.372	.396	41.066	11.315	87.144
2005.0	175665.7	11748.3	-.501	79.561	69.397	.395	41.162	11.283	86.974
2006.0	175563.1	11716.8	-.559	79.737	69.274	.394	41.260	11.250	86.842
2007.0	175448.9	11686.5	-.617	79.909	69.010	.415	41.392	11.219	86.764
2008.0	175323.3	11654.9	-.674	80.085	68.593	.424	41.493	11.187	86.702
2009.0	175186.4	11623.3	-.729	80.261	67.977	.443	41.566	11.154	86.676

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2010.0	175038.6	11591.6	-.784	80.436	67.212	.441	41.611	11.121	86.683
2011.0	174880.3	11560.0	-.836	80.611	66.317	.427	41.669	11.087	86.723
2012.0	174712.0	11528.3	-.886	80.785	65.318	.422	41.762	11.054	86.792
2013.0	174534.3	11496.6	-.934	80.959	64.232	.437	41.827	11.020	86.889
2014.0	174347.7	11464.7	-.979	81.132	62.892	.462	41.863	10.986	87.012
2015.0	174152.9	11433.0	-1.020	81.303	61.364	.426	41.846	10.952	87.162
2016.0	173950.6	11401.3	-1.058	81.472	59.809	.424	41.836	10.918	87.336
2017.0	173741.7	11369.7	-1.091	81.638	58.342	.371	41.834	10.884	87.530
2018.0	173527.0	11338.1	-1.122	81.804	57.091	.358	41.821	10.850	87.742
2019.0	173307.1	11306.4	-1.150	81.968	55.957	.319	41.805	10.816	87.969
2020.0	173082.5	11274.6	-1.174	82.132	54.945	.269	41.781	10.781	88.207
2021.0	172854.0	11242.6	-1.196	82.295	53.961	.258	41.755	10.746	88.454
2022.0	172622.0	11210.5	-1.215	82.458	52.934	.218	41.741	10.711	88.709
2023.0	172387.0	11178.3	-1.232	82.620	51.874	.231	41.728	10.677	88.972
2024.0	172149.6	11147.1	-1.246	82.780	50.407	.269	41.689	10.642	89.257
2025.0	171910.5	11114.7	-1.255	82.937	48.714	.189	41.622	10.607	89.525
2026.0	171670.7	11082.1	-1.260	83.093	47.451	.171	41.558	10.572	89.794
2027.0	171430.9	11049.4	-1.263	83.247	46.381	.221	41.463	10.536	90.058
2028.0	171191.3	11016.7	-1.263	83.400	45.064	.245	41.362	10.501	90.320
2029.0	170952.8	10983.9	-1.258	83.550	43.765	.183	41.261	10.465	90.574
2030.0	170716.1	10951.0	-1.252	83.699	42.794	.166	41.160	10.430	90.821
2031.0	170481.3	10918.2	-1.244	83.846	41.939	.178	41.041	10.394	91.060
2032.0	170248.9	10885.5	-1.234	83.991	41.116	.160	40.901	10.359	91.290
2033.0	170019.2	10852.8	-1.222	84.135	40.737	.133	40.763	10.324	91.511
2034.0	169792.3	10820.1	-1.210	84.279	40.699	.157	40.656	10.289	91.720
2035.0	169568.3	10787.4	-1.199	84.424	40.913	.196	40.578	10.254	91.918
2036.0	169346.9	10754.8	-1.188	84.571	41.347	.208	40.508	10.219	92.106
2037.0	169128.0	10722.1	-1.178	84.719	41.954	.216	40.432	10.184	92.283
2038.0	168911.4	10688.3	-1.171	84.874	42.712	.228	40.363	10.148	92.430
2039.0	168696.5	10655.7	-1.165	85.027	43.455	.240	40.276	10.114	92.591

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2040.0	168483.1	10623.3	-1.162	85.181	44.170	.223	40.207	10.079	92.748
2041.0	168270.7	10590.9	-1.161	85.338	45.001	.221	40.170	10.045	92.900
2042.0	168058.9	10558.6	-1.161	85.498	45.844	.246	40.142	10.011	93.048
2043.0	167847.3	10526.3	-1.165	85.659	46.641	.233	40.104	9.976	93.194
2044.0	167635.5	10494.1	-1.170	85.823	47.442	.214	40.050	9.942	93.340
2045.0	167423.1	10461.8	-1.177	85.989	48.240	.187	39.998	9.908	93.484
2046.0	167209.9	10429.3	-1.185	86.158	49.114	.185	39.982	9.873	93.626
2047.0	166995.4	10396.8	-1.197	86.331	50.043	.225	39.986	9.839	93.768
2048.0	166779.3	10364.2	-1.210	86.506	50.771	.284	39.965	9.805	93.913
2049.0	166561.1	10331.6	-1.226	86.683	51.103	.295	39.917	9.770	94.063
2050.0	166340.7	10299.0	-1.242	86.862	50.952	.314	39.894	9.735	94.217
2051.0	166118.0	10266.3	-1.257	87.040	49.903	.395	39.916	9.701	94.375
2052.0	165893.6	10233.5	-1.267	87.215	47.848	.295	39.936	9.666	94.536
2053.0	165668.6	10198.7	-1.271	87.387	45.651	.193	39.911	9.629	94.659
2054.0	165444.2	10165.9	-1.269	87.551	43.668	.127	39.863	9.595	94.815
2055.0	165221.1	10133.4	-1.263	87.711	41.824	.117	39.815	9.560	94.968
2056.0	165000.1	10100.8	-1.252	87.865	40.330	.005	39.777	9.526	95.111
2057.0	164782.0	10068.1	-1.238	88.018	39.314	.030	39.703	9.491	95.239
2058.0	164567.4	10035.3	-1.221	88.170	38.347	.044	39.607	9.457	95.352
2059.0	164356.5	10002.7	-1.202	88.319	37.418	.037	39.515	9.423	95.453
2060.0	164149.6	9970.4	-1.182	88.466	36.475	.083	39.426	9.390	95.556
2061.0	163946.9	9938.2	-1.159	88.608	35.215	.082	39.308	9.360	95.709
2062.0	163749.1	9906.1	-1.134	88.748	34.492	-.070	39.167	9.330	95.844
2063.0	163556.2	9874.3	-1.108	88.888	34.329	-.019	39.020	9.300	95.962
2064.0	163368.2	9842.7	-1.084	89.026	34.316	.035	38.893	9.271	96.066
2065.0	163184.9	9811.4	-1.059	89.165	34.425	-.015	38.771	9.242	96.157
2066.0	163006.2	9780.4	-1.037	89.303	35.057	-.024	38.637	9.213	96.234
2067.0	162831.5	9749.8	-1.017	89.444	36.156	-.036	38.558	9.185	96.301
2068.0	162660.4	9719.1	-1.001	89.590	37.699	-.012	38.533	9.157	96.352
2069.0	162492.3	9688.5	-.988	89.741	39.389	.040	38.524	9.128	96.392

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2070.0	162326.3	9656.8	-.980	89.898	40.919	.101	38.476	9.099	96.400
2071.0	162161.9	9626.3	-.976	90.059	42.101	.144	38.365	9.071	96.426
2072.0	161998.4	9596.2	-.975	90.222	42.985	.172	38.280	9.043	96.453
2073.0	161835.3	9566.2	-.975	90.387	43.690	.147	38.252	9.015	96.480
2074.0	161672.4	9536.2	-.978	90.555	44.470	.123	38.229	8.987	96.505
2075.0	161509.2	9506.3	-.983	90.725	45.243	.158	38.201	8.960	96.532
2076.0	161345.4	9476.5	-.991	90.897	45.875	.222	38.176	8.932	96.561
2077.0	161180.7	9446.8	-.999	91.072	46.273	.225	38.148	8.905	96.593
2078.0	161015.0	9417.1	-1.009	91.247	46.508	.206	38.123	8.877	96.629
2079.0	160848.0	9387.5	-1.019	91.423	46.754	.188	38.088	8.850	96.670
2080.0	160679.7	9358.1	-1.031	91.600	46.972	.230	38.068	8.823	96.718
2081.0	160509.8	9328.8	-1.043	91.777	47.041	.242	38.033	8.796	96.774
2082.0	160338.4	9299.7	-1.056	91.955	46.996	.197	37.926	8.769	96.838
2083.0	160165.3	9270.9	-1.069	92.131	46.917	.140	37.824	8.743	96.913
2084.0	159990.5	9242.2	-1.082	92.308	46.849	.099	37.802	8.716	96.995
2085.0	159814.2	9213.6	-1.095	92.484	46.769	.056	37.795	8.690	97.083
2086.0	159636.2	9185.1	-1.109	92.661	46.742	.044	37.783	8.664	97.180
2087.0	159456.4	9156.8	-1.122	92.837	46.770	.059	37.748	8.638	97.286
2088.0	159274.9	9128.7	-1.137	93.014	46.814	.069	37.728	8.612	97.402
2089.0	159091.6	9105.8	-1.151	93.181	46.826	.042	37.713	8.591	97.635
2090.0	158906.3	9077.8	-1.166	93.358	46.795	-.004	37.694	8.566	97.767
2091.0	158719.1	9049.9	-1.182	93.534	46.783	-.023	37.670	8.540	97.906
2092.0	158529.9	9022.1	-1.198	93.710	46.794	-.018	37.647	8.515	98.054
2093.0	158338.6	8994.1	-1.214	93.887	46.768	-.041	37.624	8.489	98.207
2094.0	158145.2	8966.2	-1.231	94.064	46.682	-.070	37.603	8.464	98.366
2095.0	157949.9	8938.3	-1.247	94.241	46.614	-.088	37.583	8.438	98.532
2096.0	157752.4	8910.3	-1.264	94.418	46.462	-.057	37.555	8.413	98.706
2097.0	157553.0	8882.6	-1.279	94.592	46.622	-.310	37.522	8.388	98.890
2098.0	157351.6	8854.9	-1.299	94.770	48.510	-.238	37.504	8.362	99.083
2099.0	157146.8	8827.2	-1.329	94.957	50.219	.221	37.452	8.337	99.288

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 \* ST11BET USING FLAIR11(4/13/84), INERTIAL-BT11A12, NJ0124 DYN. DATA. PAGE 71 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2100.0	156937.8	8799.5	-1.360	95.144	50.314	-.025	37.380	8.312	99.509
2101.0	156724.6	8771.7	-1.393	95.334	51.990	1.016	37.320	8.287	99.746
2102.0	156506.5	8744.0	-1.430	95.527	51.837	.890	37.296	8.262	100.003
2103.0	156283.5	8716.3	-1.465	95.718	50.811	.128	37.287	8.237	100.278
2104.0	156056.2	8688.5	-1.497	95.908	50.551	-.081	37.262	8.212	100.568
2105.0	155824.6	8658.5	-1.529	96.107	50.487	-.102	37.362	8.185	100.824
2106.0	155589.1	8629.7	-1.559	96.300	50.403	-.134	37.694	8.158	101.124
2107.0	155349.9	8600.1	-1.586	96.496	50.317	-.173	37.822	8.132	101.420
2108.0	155107.4	8571.1	-1.615	96.691	50.255	-.215	37.465	8.106	101.742
2109.0	154861.1	8542.8	-1.646	96.884	50.242	-.253	37.144	8.080	102.097
2110.0	154610.9	8515.0	-1.678	97.075	50.328	-.261	36.903	8.055	102.480
2111.0	154356.5	8487.6	-1.713	97.268	50.405	-.082	36.785	8.031	102.889
2112.0	154097.3	8460.1	-1.750	97.462	49.244	.396	36.714	8.006	103.320
2113.0	153834.3	8432.4	-1.775	97.650	45.443	.209	36.702	7.981	103.759
2114.0	153569.5	8404.5	-1.783	97.821	41.083	-.478	36.701	7.956	104.202
2115.0	153305.3	8376.6	-1.782	97.984	38.894	-.693	36.563	7.931	104.643
2116.0	153041.9	8349.1	-1.781	98.144	37.338	-.304	36.324	7.907	105.088
2117.0	152779.9	8321.8	-1.773	98.293	34.785	-.379	36.164	7.882	105.534
2118.0	152520.3	8294.4	-1.760	98.414	33.138	-.714	36.101	7.858	105.967
2119.0	152263.7	8267.0	-1.745	98.555	32.927	-.688	36.064	7.833	106.390
2120.0	152010.0	8239.5	-1.729	98.697	33.258	-.635	36.010	7.809	106.794
2121.0	151759.3	8211.8	-1.715	98.845	33.979	-.507	35.917	7.784	107.184
2122.0	151511.2	8184.4	-1.703	98.996	34.617	-.355	35.838	7.759	107.566
2123.0	151265.4	8157.0	-1.693	99.150	34.900	-.323	35.789	7.735	107.941
2124.0	151021.8	8129.6	-1.683	99.306	35.089	-.329	35.724	7.710	108.304
2125.0	150780.4	8102.4	-1.674	99.463	35.327	-.313	35.604	7.686	108.660
2126.0	150540.8	8075.2	-1.666	99.622	35.536	-.321	35.518	7.661	109.011
2127.0	150303.0	8048.2	-1.659	99.783	35.686	-.361	35.465	7.637	109.356
2128.0	150066.9	8021.1	-1.653	99.944	35.992	-.389	35.385	7.613	109.693
2129.0	149832.2	7994.3	-1.649	100.108	36.388	-.397	35.279	7.589	110.028

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2130.0	149598.6	7967.5	-1.648	100.274	36.915	-.400	35.199	7.565	110.361
2131.0	149365.9	7940.9	-1.648	100.443	37.571	-.402	35.151	7.541	110.693
2132.0	149133.7	7915.0	-1.650	100.642	38.322	-.375	35.097	7.518	111.041
2133.0	148901.8	7888.4	-1.654	100.817	39.163	-.352	35.049	7.494	111.369
2134.0	148669.7	7861.8	-1.662	100.995	40.062	-.322	35.010	7.470	111.696
2135.0	148437.2	7835.3	-1.672	101.177	40.974	-.271	34.985	7.446	112.026
2136.0	148203.7	7808.8	-1.686	101.362	41.762	-.214	34.958	7.423	112.360
2137.0	147969.0	7782.3	-1.701	101.549	42.289	-.188	34.924	7.399	112.701
2138.0	147732.8	7755.7	-1.719	101.737	42.662	-.202	34.886	7.375	113.047
2139.0	147494.8	7729.3	-1.738	101.926	43.037	-.206	34.863	7.352	113.403
2140.0	147254.9	7702.8	-1.758	102.117	43.362	-.201	34.832	7.328	113.768
2141.0	147013.0	7676.4	-1.779	102.309	43.639	-.195	34.797	7.305	114.140
2142.0	146769.0	7649.8	-1.801	102.501	43.868	-.188	34.768	7.281	114.521
2143.0	146522.7	7623.2	-1.824	102.695	44.012	-.189	34.737	7.257	114.910
2144.0	146274.1	7596.6	-1.848	102.890	44.075	-.156	34.705	7.234	115.309
2145.0	146023.2	7568.5	-1.872	103.072	43.950	-.154	34.657	7.208	115.674
2146.0	145770.1	7542.0	-1.895	103.267	43.751	-.142	34.582	7.185	116.097
2147.0	145514.7	7515.5	-1.918	103.461	43.520	-.103	34.507	7.161	116.533
2148.0	145257.1	7489.2	-1.941	103.655	43.182	-.081	34.441	7.138	116.983
2149.0	144997.5	7462.9	-1.962	103.849	42.715	-.084	34.370	7.115	117.444
2150.0	144736.1	7436.5	-1.980	104.043	42.126	-.083	34.302	7.091	117.913
2151.0	144473.4	7410.1	-1.996	104.236	41.604	-.136	34.247	7.068	118.385
2152.0	144209.8	7383.6	-2.009	104.430	41.208	-.103	34.164	7.044	118.858
2153.0	143945.3	7357.1	-2.022	104.623	40.701	-.092	34.071	7.021	119.337
2154.0	143680.4	7330.5	-2.030	104.817	39.820	-.048	33.954	6.997	119.815
2155.0	143415.6	7303.7	-2.033	105.009	38.527	-.017	33.804	6.974	120.285
2156.0	143151.8	7276.7	-2.028	105.199	37.002	-.032	33.625	6.950	120.741
2157.0	142890.1	7249.6	-2.018	105.387	35.484	.120	33.441	6.926	121.185
2158.0	142630.6	7223.2	-2.005	105.576	32.663	.393	33.258	6.902	121.640
2159.0	142374.4	7196.5	-1.978	105.737	28.048	.183	33.104	6.879	122.066

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 73 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2160.0	142123.4	7169.9	-1.937	105.876	24.511	-.218	32.896	6.855	122.463
2161.0	141878.8	7143.4	-1.892	106.005	23.344	-.314	32.609	6.831	122.835
2162.0	141640.5	7117.4	-1.850	106.134	23.774	-.305	32.334	6.808	123.187
2163.0	141408.1	7091.7	-1.811	106.266	25.129	-.260	32.086	6.785	123.519
2164.0	141180.8	7066.5	-1.779	106.406	27.511	-.280	31.868	6.762	123.839
2165.0	140957.7	7041.6	-1.756	106.561	30.847	-.120	31.687	6.740	124.143
2166.0	140737.6	7016.8	-1.742	106.730	34.143	-.037	31.531	6.718	124.439
2167.0	140519.1	6992.3	-1.741	106.913	37.254	.056	31.437	6.696	124.733
2168.0	140301.0	6967.8	-1.747	107.109	39.706	.150	31.387	6.674	125.024
2169.0	140082.5	6943.1	-1.759	107.314	41.412	.157	31.337	6.652	125.310
2170.0	139863.1	6918.4	-1.774	107.525	42.764	.138	31.280	6.630	125.600
2171.0	139642.2	6893.8	-1.795	107.741	43.743	.141	31.202	6.608	125.899
2172.0	139419.3	6868.5	-1.819	107.959	44.414	.160	31.116	6.585	126.182
2173.0	139194.0	6844.3	-1.847	108.180	44.843	.163	31.033	6.564	126.515
2174.0	138966.1	6820.3	-1.875	108.401	44.962	.137	30.992	6.542	126.868
2175.0	138735.5	6796.2	-1.903	108.623	44.887	.051	30.960	6.521	127.233
2176.0	138502.4	6772.2	-1.933	108.847	45.007	.124	30.921	6.500	127.614
2177.0	138266.3	6748.2	-1.963	109.074	43.899	.568	30.901	6.478	128.011
2178.0	138028.0	6724.2	-1.983	109.290	40.139	.525	30.908	6.457	128.418
2179.0	137789.2	6700.1	-1.984	109.487	35.129	.223	30.944	6.436	128.821
2180.0	137552.1	6675.8	-1.969	109.664	30.414	.139	30.930	6.414	129.208
2181.0	137318.5	6651.5	-1.938	109.821	25.608	.083	30.842	6.392	129.569
2182.0	137090.0	6627.1	-1.895	109.954	20.781	.079	30.661	6.370	129.899
2183.0	136867.7	6603.0	-1.845	110.063	15.962	.134	30.524	6.349	130.203
2184.0	136652.3	6579.1	-1.788	110.145	11.022	.147	30.431	6.327	130.473
2185.0	136444.4	6555.3	-1.727	110.201	6.024	.158	30.329	6.306	130.701
2186.0	136244.5	6531.6	-1.663	110.229	.900	.149	30.235	6.285	130.885
2187.0	136052.6	6509.1	-1.597	110.208	-4.345	.119	30.142	6.264	131.074
2188.0	135868.9	6485.3	-1.533	110.177	-9.656	.064	30.045	6.243	131.155
2189.0	135692.8	6461.5	-1.474	110.117	-14.901	.056	29.937	6.221	131.194

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2190.0	135523.6	6437.8	-1.424	110.029	-20.137	.053	29.822	6.199	131.196
2191.0	135360.0	6414.3	-1.386	109.914	-25.469	.001	29.681	6.178	131.171
2192.0	135200.4	6391.1	-1.363	109.772	-30.794	-.034	29.524	6.157	131.131
2193.0	135043.1	6368.1	-1.357	109.605	-36.064	-.020	29.383	6.136	131.086
2194.0	134886.2	6345.3	-1.369	109.413	-41.427	-.047	29.274	6.115	131.042
2195.0	134727.2	6322.5	-1.403	109.197	-46.044	-.217	29.242	6.094	131.011
2196.0	134564.3	6299.8	-1.453	108.967	-48.921	-.389	29.153	6.073	131.004
2197.0	134396.0	6277.4	-1.511	108.732	-50.149	-.325	28.981	6.053	131.040
2198.0	134221.7	6255.4	-1.574	108.497	-50.999	-.207	28.821	6.033	131.121
2199.0	134040.9	6233.5	-1.642	108.259	-51.760	-.104	28.783	6.013	131.240
2200.0	133853.5	6211.5	-1.712	108.016	-52.507	-.057	28.826	5.994	131.392
2201.0	133658.9	6189.3	-1.785	107.769	-53.133	-.051	28.865	5.974	131.578
2202.0	133457.2	6167.2	-1.860	107.519	-53.451	-.012	28.863	5.954	131.804
2203.0	133248.0	6145.1	-1.937	107.269	-53.579	.024	28.830	5.934	132.071
2204.0	133031.5	6123.1	-2.014	107.017	-53.617	.026	28.788	5.914	132.382
2205.0	132807.5	6100.6	-2.091	106.785	-53.429	.067	28.775	5.894	132.716
2206.0	132576.4	6078.6	-2.167	106.532	-53.125	.079	28.754	5.875	133.108
2207.0	132338.2	6056.5	-2.240	106.278	-52.687	.071	28.716	5.855	133.538
2208.0	132093.4	6034.4	-2.311	106.024	-52.080	.058	28.654	5.836	134.008
2209.0	131842.3	6012.4	-2.379	105.770	-51.358	.055	28.591	5.816	134.516
2210.0	131585.3	5990.3	-2.443	105.518	-50.557	.029	28.538	5.797	135.056
2211.0	131322.7	5968.3	-2.503	105.266	-49.567	-.009	28.495	5.777	135.630
2212.0	131055.3	5946.3	-2.558	105.017	-48.382	-.015	28.436	5.758	136.235
2213.0	130783.6	5924.3	-2.606	104.772	-47.161	.000	28.333	5.739	136.867
2214.0	130508.3	5902.3	-2.648	104.528	-46.045	-.003	28.211	5.720	137.519
2215.0	130230.2	5880.3	-2.684	104.287	-45.334	.036	28.137	5.700	138.188
2216.0	129949.6	5858.2	-2.718	104.047	-45.417	.149	28.155	5.681	138.873
2217.0	129666.6	5835.8	-2.754	103.778	-46.109	.104	28.181	5.661	139.555
2218.0	129380.8	5813.6	-2.794	103.526	-46.510	.046	28.165	5.642	140.265
2219.0	129092.2	5791.3	-2.833	103.274	-46.627	.071	28.086	5.622	140.993

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJO124 DYN. DATA. PAGE 75 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2220.0	128800.9	5769.1	-2.872	103.021	-46.723	.119	27.997	5.603	141.740
2221.0	128506.9	5746.8	-2.911	102.765	-46.860	.111	27.941	5.583	142.505
2222.0	128210.1	5724.5	-2.949	102.508	-46.738	.101	27.914	5.564	143.286
2223.0	127910.8	5702.2	-2.987	102.252	-46.379	.093	27.870	5.544	144.089
2224.0	127609.1	5680.1	-3.023	101.999	-45.798	.068	27.760	5.525	144.914
2225.0	127305.2	5658.1	-3.056	101.749	-45.130	.096	27.632	5.506	145.762
2226.0	126999.5	5636.2	-3.086	101.503	-44.662	.114	27.535	5.487	146.630
2227.0	126692.1	5614.3	-3.115	101.257	-44.332	.121	27.461	5.468	147.514
2228.0	126383.3	5592.9	-3.142	101.048	-43.981	.172	27.418	5.449	148.436
2229.0	126073.1	5571.1	-3.167	100.805	-43.619	.209	27.345	5.430	149.347
2230.0	125761.9	5549.3	-3.191	100.559	-43.400	.220	27.252	5.411	150.267
2231.0	125449.7	5527.3	-3.212	100.311	-43.104	.228	27.178	5.392	151.190
2232.0	125137.0	5505.4	-3.232	100.062	-42.800	.227	27.097	5.373	152.121
2233.0	124823.7	5483.5	-3.249	99.811	-42.426	.228	27.001	5.354	153.057
2234.0	124510.3	5461.5	-3.264	99.560	-41.967	.220	26.893	5.334	153.994
2235.0	124196.8	5439.5	-3.276	99.309	-41.468	.246	26.771	5.315	154.939
2236.0	123883.7	5417.6	-3.286	99.057	-41.135	.256	26.643	5.296	155.884
2237.0	123571.0	5395.7	-3.294	98.803	-40.806	.238	26.536	5.277	156.830
2238.0	123259.1	5373.7	-3.298	98.548	-40.431	.279	26.409	5.258	157.766
2239.0	122948.3	5350.0	-3.302	98.273	-40.222	.246	26.275	5.237	158.597
2240.0	122638.6	5328.2	-3.304	98.016	-39.934	.222	26.157	5.218	159.533
2241.0	122330.1	5306.6	-3.304	97.759	-39.520	.176	26.010	5.199	160.476
2242.0	122022.9	5285.3	-3.303	97.506	-38.830	.179	25.855	5.180	161.428
2243.0	121717.3	5264.2	-3.298	97.255	-38.410	.188	25.713	5.161	162.382
2244.0	121413.4	5243.2	-3.294	97.005	-38.198	.198	25.578	5.143	163.340
2245.0	121111.2	5222.5	-3.289	96.754	-38.144	.186	25.450	5.125	164.298
2246.0	120810.7	5201.9	-3.284	96.502	-38.179	.191	25.323	5.107	165.255
2247.0	120511.9	5181.4	-3.278	96.248	-38.304	.188	25.227	5.089	166.208
2248.0	120214.8	5161.0	-3.273	95.992	-38.433	.181	25.136	5.071	167.158
2249.0	119919.4	5140.9	-3.270	95.734	-38.568	.180	25.038	5.053	168.110

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2250.0	119625.5	5122.8	-3.265	95.469	-38.817	.153	24.937	5.037	169.192
2251.0	119333.1	5102.7	-3.264	95.207	-39.131	.119	24.837	5.020	170.133
2252.0	119041.8	5082.7	-3.266	94.943	-39.440	.102	24.735	5.002	171.074
2253.0	118751.5	5062.8	-3.269	94.676	-39.745	.079	24.644	4.984	172.013
2254.0	118462.0	5042.9	-3.275	94.406	-40.007	.065	24.557	4.967	172.951
2255.0	118173.2	5023.0	-3.281	94.135	-40.395	.104	24.500	4.949	173.884
2256.0	117884.9	5003.0	-3.290	93.858	-41.021	.077	24.430	4.932	174.810
2257.0	117597.0	4983.1	-3.302	93.577	-41.516	.060	24.346	4.914	175.735
2258.0	117309.0	4963.1	-3.317	93.293	-41.920	.048	24.271	4.896	176.665
2259.0	117020.9	4943.2	-3.334	93.006	-42.081	.058	24.194	4.878	177.595
2260.0	116732.7	4923.3	-3.350	92.718	-42.075	.125	24.129	4.861	178.531
2261.0	116444.3	4905.1	-3.364	92.436	-42.176	.204	24.084	4.845	179.589
2262.0	116155.8	4884.8	-3.379	92.140	-42.510	.184	24.007	4.827	180.503
2263.0	115867.3	4864.3	-3.396	91.837	-42.917	.112	23.927	4.808	181.402
2264.0	115578.7	4843.7	-3.412	91.531	-43.015	.041	23.831	4.790	182.290
2265.0	115290.2	4822.8	-3.425	91.221	-42.784	.041	23.719	4.771	183.155
2266.0	115001.9	4801.7	-3.437	90.909	-43.028	-.129	23.582	4.752	184.006
2267.0	114713.9	4780.8	-3.449	90.600	-40.657	.848	23.403	4.734	184.863
2268.0	114426.5	4759.8	-3.456	90.297	-40.822	.910	23.248	4.715	185.710
2269.0	114139.6	4738.8	-3.472	89.984	-42.406	.253	23.151	4.696	186.552
2270.0	113852.4	4717.8	-3.489	89.667	-41.023	-.148	23.158	4.677	187.390
2271.0	113566.1	4696.4	-3.483	89.371	-36.926	.158	23.125	4.658	188.191
2272.0	113282.7	4672.7	-3.459	89.061	-35.604	.123	22.910	4.636	188.774
2273.0	113002.5	4651.4	-3.436	88.783	-35.099	.019	22.652	4.617	189.517
2274.0	112725.6	4630.3	-3.410	88.513	-34.945	.057	22.550	4.597	190.240
2275.0	112452.3	4608.8	-3.382	88.235	-35.877	.049	22.502	4.578	190.905
2276.0	112182.3	4587.3	-3.362	87.945	-37.784	-.122	22.391	4.558	191.533
2277.0	111914.8	4566.0	-3.352	87.645	-38.901	-.230	22.259	4.539	192.146
2278.0	111649.1	4544.8	-3.348	87.343	-39.275	-.172	22.101	4.520	192.753
2279.0	111384.9	4523.9	-3.347	87.042	-39.602	-.065	21.970	4.500	193.359

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2280.0	111121.8	4503.0	-3.353	86.738	-40.224	-.073	21.863	4.481	193.960
2281.0	110859.5	4482.2	-3.361	86.433	-40.603	.003	21.776	4.462	194.553
2282.0	110597.7	4461.3	-3.373	86.123	-41.277	.054	21.720	4.443	195.136
2283.0	110336.1	4440.4	-3.388	85.808	-41.936	.041	21.671	4.424	195.708
2284.0	110074.6	4419.5	-3.405	85.489	-42.449	.030	21.609	4.405	196.272
2285.0	109812.9	4395.4	-3.427	85.207	-42.693	.094	21.571	4.382	196.545
2286.0	109551.0	4374.6	-3.447	84.880	-42.562	.207	21.503	4.363	197.106
2287.0	109289.1	4353.9	-3.464	84.551	-42.669	.270	21.435	4.344	197.672
2288.0	109027.0	4333.4	-3.486	84.218	-43.053	.262	21.370	4.325	198.257
2289.0	108764.5	4313.2	-3.510	83.881	-43.255	.272	21.276	4.307	198.859
2290.0	108501.5	4293.1	-3.534	83.540	-43.498	.246	21.161	4.288	199.479
2291.0	108237.8	4273.3	-3.561	83.192	-43.873	.219	21.072	4.270	200.119
2292.0	107973.4	4253.6	-3.591	82.837	-44.357	.067	21.010	4.252	200.778
2293.0	107707.9	4234.1	-3.622	82.479	-44.409	.018	20.926	4.234	201.461
2294.0	107441.5	4214.8	-3.652	82.117	-44.410	.017	20.830	4.216	202.169
2295.0	107174.1	4195.7	-3.683	81.752	-44.607	-.036	20.772	4.199	202.895
2296.0	106905.8	4176.7	-3.715	81.382	-44.779	-.085	20.702	4.181	203.645
2297.0	106636.3	4162.9	-3.743	80.995	-44.877	-.120	20.607	4.169	204.906
2298.0	106365.8	4144.1	-3.776	80.618	-44.971	-.164	20.519	4.152	205.689
2299.0	106094.2	4067.2	-3.864	80.144	-45.044	-.313	20.399	4.076	200.705
2300.0	105821.5	4046.6	-3.902	79.767	-45.033	-.331	20.310	4.057	201.277
2301.0	105547.5	4026.3	-3.941	79.394	-44.817	-.341	20.215	4.039	201.877
2302.0	105272.2	4006.2	-3.979	79.026	-44.355	-.291	20.150	4.020	202.507
2303.0	104995.8	3986.3	-4.015	78.665	-43.775	-.168	20.099	4.001	203.159
2304.0	104718.4	3966.5	-4.051	78.307	-43.590	-.167	20.052	3.983	203.834
2305.0	104440.0	3946.9	-4.084	77.953	-43.315	-.077	20.003	3.965	204.522
2306.0	104160.8	3927.4	-4.119	77.596	-43.627	-.095	19.961	3.947	205.231
2307.0	103880.7	3908.0	-4.152	77.233	-43.874	-.103	19.917	3.929	205.951
2308.0	103599.8	3888.7	-4.185	76.867	-44.038	-.101	19.865	3.911	206.676
2309.0	103318.1	3869.5	-4.218	76.501	-44.019	-.087	19.777	3.893	207.424

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2310.0	103035.7	3850.7	-4.252	76.136	-43.931	-.086	19.636	3.876	208.214
2311.0	102752.4	3832.2	-4.285	75.772	-43.831	-.081	19.559	3.859	209.037
2312.0	102468.3	3813.8	-4.319	75.416	-43.717	-.075	19.544	3.842	209.873
2313.0	102183.6	3795.7	-4.349	75.047	-43.588	-.079	19.499	3.825	210.755
2314.0	101898.3	3778.1	-4.378	74.674	-43.429	-.093	19.434	3.809	211.681
2315.0	101612.5	3761.2	-4.404	74.296	-43.146	-.099	19.358	3.793	212.695
2316.0	101326.5	3744.0	-4.428	73.916	-42.981	-.136	19.270	3.777	213.678
2317.0	101040.3	3727.0	-4.452	73.534	-42.943	-.177	19.170	3.762	214.672
2318.0	100754.0	3710.1	-4.476	73.150	-42.866	-.200	19.092	3.746	215.690
2319.0	100467.4	3693.7	-4.501	72.766	-42.772	-.218	19.020	3.731	216.759
2320.0	100180.4	3676.9	-4.527	72.386	-42.157	-.159	18.952	3.715	217.783
2321.0	99893.4	3659.9	-4.548	72.009	-41.274	.074	18.876	3.700	218.786
2322.0	99606.5	3642.6	-4.566	71.630	-41.057	.121	18.808	3.684	219.737
2323.0	99320.1	3625.2	-4.580	71.239	-41.144	.042	18.742	3.667	220.677
2324.0	99034.3	3607.8	-4.591	70.840	-40.992	.011	18.637	3.651	221.596
2325.0	98749.2	3590.4	-4.604	70.438	-40.739	-.017	18.432	3.635	222.519
2326.0	98464.8	3571.9	-4.618	70.061	-40.289	-.005	18.292	3.618	223.274
2327.0	98181.0	3554.9	-4.631	69.663	-39.751	-.031	18.143	3.602	224.210
2328.0	97897.9	3537.9	-4.642	69.272	-38.941	.007	18.037	3.586	225.144
2329.0	97615.6	3520.8	-4.649	68.883	-38.530	.027	17.916	3.570	226.038
2330.0	97334.2	3503.9	-4.664	68.491	-37.639	-.217	17.763	3.554	226.944
2331.0	97053.6	3487.0	-4.660	68.128	-33.644	-.190	17.702	3.538	227.842
2332.0	96775.6	3469.9	-4.625	67.799	-28.509	.151	17.665	3.522	228.677
2333.0	96501.9	3452.7	-4.566	67.498	-24.574	.010	17.586	3.506	229.431
2334.0	96233.8	3435.3	-4.486	67.242	-20.275	-.124	17.500	3.489	230.094
2335.0	95972.5	3417.7	-4.385	67.033	-15.452	-.137	17.427	3.473	230.653
2336.0	95719.0	3400.1	-4.268	66.875	-10.715	-.187	17.360	3.456	231.098
2337.0	95474.1	3382.2	-4.141	66.773	-5.557	-.169	17.274	3.439	231.407
2338.0	95238.1	3364.5	-4.012	66.734	-.411	-.085	17.162	3.422	231.617
2339.0	95010.7	3346.7	-3.887	66.752	4.411	-.031	17.021	3.405	231.723



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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 79 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2340.0	94791.5	3329.1	-3.772	66.826	9.351	-.027	16.881	3.388	231.740
2341.0	94579.7	3311.7	-3.671	66.959	14.735	.152	16.759	3.371	231.695
2342.0	94374.3	3294.2	-3.587	67.150	19.694	.252	16.643	3.354	231.549
2343.0	94174.2	3276.7	-3.525	67.390	24.257	.201	16.540	3.337	231.339
2344.0	93978.0	3259.2	-3.487	67.683	29.116	.197	16.448	3.320	231.075
2345.0	93784.1	3241.8	-3.479	68.027	34.050	.404	16.339	3.303	230.780
2346.0	93590.7	3223.9	-3.500	68.403	36.911	.432	16.236	3.285	230.412
2347.0	93396.7	3206.8	-3.538	68.797	38.230	.299	16.162	3.269	230.147
2348.0	93201.3	3189.9	-3.583	69.203	39.230	.168	16.144	3.252	229.911
2349.0	93004.1	3173.2	-3.638	69.620	40.107	.087	16.153	3.236	229.714
2350.0	92804.8	3156.6	-3.697	70.053	41.072	.087	16.155	3.220	229.539
2351.0	92602.9	3140.9	-3.764	70.496	42.007	.135	16.156	3.205	229.522
2352.0	92398.2	3124.5	-3.837	70.948	42.435	.149	16.138	3.189	229.423
2353.0	92190.4	3108.0	-3.911	71.406	42.515	.141	16.129	3.173	229.330
2354.0	91979.8	3091.4	-3.983	71.870	42.377	.106	16.128	3.157	229.239
2355.0	91766.4	3074.7	-4.052	72.340	42.293	.076	16.120	3.140	229.141
2356.0	91550.4	3057.7	-4.123	72.815	42.230	.041	16.103	3.124	229.031
2357.0	91331.8	3040.8	-4.194	73.292	42.318	.032	16.156	3.107	228.946
2358.0	91110.6	3023.7	-4.262	73.778	42.683	.080	16.226	3.091	228.850
2359.0	90887.1	3006.5	-4.331	74.270	42.842	.108	16.217	3.074	228.746
2360.0	90661.1	2989.3	-4.401	74.763	42.577	.070	16.152	3.057	228.661
2361.0	90432.6	2972.2	-4.472	75.255	42.315	.030	16.096	3.040	228.600
2362.0	90201.8	2955.0	-4.543	75.748	42.215	.025	16.038	3.024	228.539
2363.0	89968.6	2937.7	-4.612	76.245	42.371	.077	16.026	3.007	228.476
2364.0	89733.2	2920.3	-4.679	76.749	42.406	.122	16.031	2.990	228.400
2365.0	89495.9	2902.6	-4.746	77.259	42.385	.143	15.950	2.972	228.291
2366.0	89256.4	2885.2	-4.816	77.768	42.489	.208	15.847	2.955	228.230
2367.0	89014.7	2867.9	-4.889	78.274	42.328	.218	15.747	2.938	228.199
2368.0	88770.7	2850.8	-4.963	78.777	41.960	.186	15.668	2.922	228.199
2369.0	88524.5	2833.8	-5.038	79.276	41.603	.145	15.613	2.905	228.233

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2370.0	88276.0	2816.7	-5.112	79.771	41.446	.188	15.581	2.888	228.264
2371.0	88025.4	2799.6	-5.183	80.261	40.881	.031	15.575	2.872	228.301
2372.0	87772.8	2782.4	-5.252	80.747	40.053	-.418	15.580	2.855	228.329
2373.0	87518.3	2765.0	-5.329	81.238	40.830	-.474	15.570	2.838	228.331
2374.0	87261.4	2747.8	-5.408	81.741	42.321	-.032	15.525	2.821	228.369
2375.0	87002.2	2730.6	-5.496	82.269	44.688	.704	15.463	2.804	228.409
2376.0	86740.6	2713.3	-5.576	82.803	43.213	.151	15.407	2.787	228.454
2377.0	86476.7	2696.2	-5.659	83.347	44.337	-.421	15.379	2.770	228.530
2378.0	86209.7	2678.8	-5.789	83.959	48.842	.093	15.322	2.753	228.590
2379.0	85937.7	2661.6	-5.936	84.582	49.757	.315	15.151	2.736	228.711
2380.0	85660.3	2644.5	-6.094	85.210	48.991	-.001	15.044	2.719	228.901
2381.0	85377.4	2627.9	-6.253	85.830	49.165	-.101	14.982	2.703	229.181
2382.0	85088.5	2611.4	-6.425	86.466	49.111	.122	14.935	2.686	229.527
2383.0	84794.2	2594.9	-6.571	87.091	46.844	.132	14.941	2.670	229.922
2384.0	84495.8	2578.4	-6.685	87.703	44.252	-.138	14.979	2.654	230.347
2385.0	84194.6	2562.0	-6.785	88.307	43.093	-.110	14.983	2.637	230.793
2386.0	83891.1	2545.6	-6.870	88.904	41.832	-.085	14.958	2.621	231.263
2387.0	83586.1	2529.5	-6.938	89.494	40.326	-.116	14.886	2.605	231.789
2388.0	83280.3	2513.2	-6.994	90.067	38.975	-.157	14.806	2.589	232.261
2389.0	82974.1	2496.8	-7.042	90.623	37.608	-.230	14.723	2.573	232.711
2390.0	82668.0	2479.8	-7.086	91.181	36.529	-.288	14.617	2.556	233.049
2391.0	82362.1	2463.7	-7.123	91.703	35.503	-.183	14.579	2.540	233.521
2392.0	82056.8	2447.8	-7.146	92.197	33.578	-.350	14.557	2.524	234.008
2393.0	81752.9	2432.2	-7.144	92.654	30.685	-.151	14.580	2.509	234.510
2394.0	81451.8	2416.9	-7.098	93.042	26.223	-.273	14.604	2.494	235.047
2395.0	81155.4	2401.0	-7.015	93.394	21.465	-.419	14.551	2.478	235.365
2396.0	80865.0	2384.9	-6.903	93.689	17.541	-.185	14.457	2.462	235.573
2397.0	80581.4	2368.7	-6.774	93.915	13.154	-.074	14.365	2.446	235.669
2398.0	80305.5	2352.3	-6.627	94.065	7.922	-.128	14.298	2.430	235.604
2399.0	80037.6	2335.7	-6.470	94.131	2.301	-.420	14.182	2.413	235.387

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2400.0	79778.1	2319.1	-6.313	94.140	-1.095	-.425	14.018	2.397	235.048
2401.0	79526.4	2302.6	-6.169	94.110	-2.359	-.118	13.950	2.380	234.627
2402.0	79282.2	2285.8	-6.025	94.066	-3.983	.011	14.035	2.364	234.043
2403.0	79045.7	2268.7	-5.872	93.991	-5.640	.009	14.158	2.346	233.275
2404.0	78817.2	2251.3	-5.709	93.897	-6.900	-.048	14.253	2.329	232.320
2405.0	78597.0	2233.2	-5.537	93.805	-7.527	.006	14.287	2.311	231.119
2406.0	78385.2	2215.4	-5.368	93.695	-7.690	.071	14.249	2.293	229.852
2407.0	78181.6	2197.7	-5.201	93.579	-7.697	.168	14.147	2.275	228.482
2408.0	77985.8	2180.0	-5.044	93.455	-8.220	.147	14.043	2.257	227.021
2409.0	77797.4	2162.3	-4.894	93.317	-8.867	.068	13.961	2.239	225.459
2410.0	77616.0	2144.8	-4.754	93.173	-9.107	-.002	13.887	2.221	223.837
2411.0	77441.1	2127.5	-4.622	93.024	-8.724	.023	13.805	2.204	222.159
2412.0	77272.2	2110.3	-4.502	92.882	-9.362	-.268	13.716	2.186	220.442
2413.0	77109.0	2093.4	-4.392	92.744	-9.284	-.516	13.630	2.169	218.692
2414.0	76950.9	2076.5	-4.289	92.630	-7.496	-.011	13.536	2.152	216.887
2415.0	76797.6	2059.9	-4.196	92.522	-5.498	.646	13.354	2.135	215.054
2416.0	76648.7	2043.4	-4.117	92.407	-7.182	.200	13.155	2.118	213.204
2417.0	76503.5	2026.9	-4.058	92.282	-8.317	-.307	12.926	2.102	211.319
2418.0	76361.1	2011.0	-4.019	92.161	-6.271	.061	12.670	2.086	209.504
2419.0	76220.8	1995.4	-4.005	92.061	-4.515	.408	12.360	2.070	207.728
2420.0	76081.6	1980.4	-4.018	91.970	-5.676	-.040	12.044	2.054	206.037
2421.0	75942.6	1965.7	-4.057	91.891	-6.013	-.354	11.760	2.039	204.410
2422.0	75802.8	1951.4	-4.121	91.816	-5.459	-.290	11.490	2.025	202.874
2423.0	75661.5	1937.4	-4.207	91.748	-5.441	-.288	11.231	2.011	201.408
2424.0	75517.9	1924.1	-4.317	91.673	-5.440	-.299	10.981	1.997	200.087
2425.0	75371.2	1910.8	-4.449	91.605	-5.545	-.310	10.783	1.984	198.808
2426.0	75220.9	1898.0	-4.597	91.538	-5.585	-.308	10.615	1.971	197.628
2427.0	75066.4	1885.3	-4.762	91.474	-5.496	-.288	10.461	1.958	196.530
2428.0	74907.4	1872.9	-4.940	91.411	-5.473	-.271	10.322	1.945	195.525
2429.0	74743.5	1860.8	-5.125	91.343	-5.681	-.291	10.187	1.933	194.606

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2430.0	74574.5	1849.3	-5.320	91.285	-5.791	-.323	10.101	1.921	193.862
2431.0	74400.3	1837.5	-5.518	91.221	-5.534	-.317	10.097	1.910	193.087
2432.0	74221.0	1825.7	-5.713	91.159	-5.244	-.281	10.080	1.898	192.338
2433.0	74036.5	1813.8	-5.915	91.097	-5.228	-.296	10.007	1.886	191.634
2434.0	73846.8	1802.0	-6.126	91.042	-4.994	-.304	9.940	1.874	190.979
2435.0	73651.6	1790.3	-6.344	90.992	-4.463	-.263	9.873	1.862	190.370
2436.0	73450.9	1779.0	-6.564	90.944	-3.935	-.177	9.826	1.851	189.888
2437.0	73244.8	1766.9	-6.784	90.915	-3.473	-.050	9.856	1.838	189.293
2438.0	73033.4	1754.6	-6.998	90.894	-3.104	.094	9.860	1.826	188.663
2439.0	72817.0	1741.9	-7.215	90.882	-2.925	.272	9.813	1.813	188.008
2440.0	72595.6	1728.1	-7.443	90.869	-3.085	.430	9.765	1.799	187.114
2441.0	72369.1	1715.3	-7.674	90.850	-3.634	.490	9.731	1.786	186.483
2442.0	72137.3	1702.7	-7.909	90.825	-4.070	.535	9.704	1.774	185.933
2443.0	71900.4	1690.1	-8.140	90.793	-4.482	.551	9.718	1.761	185.422
2444.0	71658.7	1677.3	-8.362	90.756	-5.072	.487	9.781	1.748	184.877
2445.0	71412.5	1665.0	-8.579	90.705	-5.386	.368	9.787	1.736	184.454
2446.0	71161.8	1653.0	-8.794	90.659	-4.730	.352	9.765	1.724	184.132
2447.0	70906.9	1641.3	-9.008	90.621	-3.821	.417	9.734	1.712	183.909
2448.0	70647.8	1630.0	-9.215	90.577	-3.148	.551	9.726	1.701	183.782
2449.0	70384.8	1618.9	-9.415	90.530	-3.046	.705	9.687	1.689	183.732
2450.0	70118.1	1608.0	-9.612	90.476	-4.279	.418	9.689	1.679	183.744
2451.0	69847.8	1597.4	-9.797	90.416	-5.237	.042	9.712	1.668	183.840
2452.0	69574.5	1587.5	-9.968	90.347	-4.875	.025	9.668	1.658	184.114
2453.0	69298.1	1577.0	-10.145	90.285	-3.610	.294	9.595	1.647	184.245
2454.0	69018.8	1566.3	-10.324	90.224	-3.292	.303	9.556	1.637	184.353
2455.0	68736.7	1555.4	-10.499	90.171	-4.257	.036	9.514	1.626	184.423
2456.0	68452.0	1544.3	-10.669	90.110	-2.429	.253	9.453	1.615	184.466
2457.0	68164.9	1533.2	-10.838	90.070	-1.291	.373	9.382	1.604	184.504
2458.0	67875.3	1522.0	-11.009	90.037	-2.516	-.039	9.380	1.592	184.513
2459.0	67583.7	1510.5	-11.169	90.019	-2.397	-.096	9.395	1.581	184.441

TIME (SEC)	ALTDE (ET)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2460.0	67290.2	1498.9	-11.327	89.984	-2.693	-.110	9.598	1.569	184.346
2461.0	66995.4	1486.8	-11.430	89.935	-3.706	-.312	10.179	1.557	184.133
2462.0	66701.6	1473.9	-11.471	89.872	-4.477	-.476	10.092	1.544	183.672
2463.0	66408.6	1461.6	-11.561	89.801	-4.927	-.579	9.799	1.531	183.318
2464.0	66115.6	1449.4	-11.667	89.735	-4.599	-.482	9.648	1.519	182.987
2465.0	65822.4	1437.5	-11.775	89.685	-3.921	-.480	9.545	1.507	182.692
2466.0	65529.0	1425.7	-11.885	89.682	-2.161	-.153	9.451	1.495	182.408
2467.0	65235.2	1414.3	-12.000	89.681	-.774	.264	9.329	1.484	182.098
2468.0	64940.9	1404.4	-12.108	89.666	-1.480	.334	9.196	1.474	181.937
2469.0	64646.0	1393.0	-12.234	89.618	-3.208	-.024	9.106	1.463	181.759
2470.0	64350.5	1381.6	-12.366	89.552	-3.684	-.306	9.007	1.452	181.576
2471.0	64054.3	1370.3	-12.502	89.495	-3.161	-.481	8.918	1.440	181.386
2472.0	63757.2	1359.0	-12.644	89.494	-1.411	-.327	8.855	1.429	181.150
2473.0	63459.4	1347.7	-12.783	89.533	.060	.063	8.756	1.417	180.854
2474.0	63160.8	1336.5	-12.929	89.552	-.325	.139	8.610	1.406	180.584
2475.0	62861.3	1325.6	-13.087	89.522	-2.204	-.229	8.505	1.395	180.375
2476.0	62560.7	1315.4	-13.234	89.479	-2.757	-.564	8.447	1.385	180.431
2477.0	62259.1	1305.3	-13.379	89.454	-1.831	-.685	8.407	1.374	180.483
2478.0	61956.7	1295.2	-13.522	89.441	-1.053	-.740	8.383	1.364	180.523
2479.0	61653.5	1285.2	-13.665	89.437	-.927	-.851	8.347	1.354	180.567
2480.0	61349.6	1275.2	-13.803	89.455	-.076	-.851	8.321	1.344	180.603
2481.0	61045.1	1265.3	-13.939	89.509	1.308	-.646	8.324	1.334	180.646
2482.0	60740.1	1255.3	-14.070	89.595	2.255	-.406	8.304	1.324	180.655
2483.0	60434.8	1245.4	-14.197	89.720	3.373	-.029	8.295	1.314	180.651
2484.0	60129.3	1235.6	-14.317	89.866	4.142	.385	8.208	1.304	180.674
2485.0	59823.7	1226.0	-14.438	90.012	3.507	.621	8.093	1.295	180.866
2486.0	59517.9	1216.1	-14.571	90.140	1.963	.562	8.057	1.286	181.224
2487.0	59211.9	1206.2	-14.697	90.249	1.346	.517	8.051	1.278	181.537
2488.0	58906.0	1196.3	-14.811	90.334	.500	.389	8.003	1.269	181.849
2489.0	58600.4	1186.7	-14.917	90.404	.159	.268	7.944	1.260	182.205

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2490.0	58295.0	1177.0	-15.026	90.448	-.562	.037	7.897	1.252	182.540
2491.0	57990.0	1167.4	-15.136	90.478	-.930	-.191	7.842	1.244	182.842
2492.0	57685.4	1157.9	-15.248	90.417	-.209	-.382	7.793	1.233	182.494
2493.0	57380.9	1148.4	-15.368	90.333	.206	-.620	7.783	1.222	181.953
2494.0	57076.7	1139.0	-15.488	90.285	1.134	-.781	7.796	1.210	181.406
2495.0	56772.6	1129.3	-15.611	90.269	2.619	-.736	7.861	1.199	180.765
2496.0	56468.9	1119.6	-15.726	90.272	2.953	-.786	7.860	1.188	180.060
2497.0	56165.6	1110.0	-15.852	90.307	3.651	-.760	7.789	1.176	179.382
2498.0	55862.6	1100.1	-15.981	90.409	5.100	-.469	7.825	1.165	178.586
2499.0	55560.0	1089.0	-16.110	90.587	5.628	-.120	7.886	1.152	177.312
2500.0	55258.3	1078.1	-16.213	90.778	5.629	.220	7.966	1.139	176.072
2501.0	54958.0	1067.5	-16.288	90.957	5.072	.477	8.134	1.127	174.867
2502.0	54659.7	1057.4	-16.306	91.229	3.946	.676	8.295	1.115	173.807
2503.0	54364.2	1047.6	-16.299	91.479	2.981	.792	8.250	1.104	172.779
2504.0	54071.4	1038.1	-16.312	91.677	1.895	.742	8.112	1.093	171.822
2505.0	53780.8	1029.3	-16.337	91.858	1.098	.632	8.015	1.082	171.057
2506.0	53492.1	1021.3	-16.370	92.040	.529	.575	7.935	1.073	170.334
2507.0	53204.9	1013.6	-16.417	92.197	.108	.465	7.798	1.064	170.058
2508.0	52918.9	1006.0	-16.493	92.340	.184	.335	7.649	1.055	169.603
2509.0	52633.4	999.4	-16.577	92.431	.389	.159	7.587	1.047	169.422
2510.0	52348.4	993.0	-16.667	92.547	1.034	.045	7.561	1.039	169.250
2511.0	52063.7	986.5	-16.765	92.694	1.649	.060	7.511	1.032	169.060
2512.0	51779.1	979.2	-16.891	92.811	2.038	.071	7.521	1.023	168.654
2513.0	51494.6	971.1	-17.030	92.896	2.418	.134	7.529	1.014	168.037
2514.0	51210.1	963.3	-17.167	92.978	2.528	.163	7.569	1.006	167.466
2515.0	50925.9	955.6	-17.297	93.065	2.404	.161	7.563	.997	166.916
2516.0	50641.7	948.4	-17.442	92.995	2.348	.040	7.519	.989	166.500
2517.0	50357.3	941.6	-17.574	92.926	2.431	-.038	7.554	.981	166.231
2518.0	50072.7	935.4	-17.721	92.844	2.178	-.167	7.506	.974	166.105
2519.0	49787.7	928.9	-17.882	92.833	2.021	-.247	7.527	.967	165.980

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 85 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2520.0	49501.8	922.7	-18.083	92.875	1.791	-.359	7.459	.960	165.968
2521.0	49214.7	916.8	-18.290	92.915	1.958	-.518	7.483	.954	166.122
2522.0	48926.2	910.9	-18.493	92.980	2.447	-.595	7.642	.948	166.220
2523.0	48637.0	899.8	-18.757	93.180	2.717	-.463	7.848	.937	164.609
2524.0	48346.9	889.9	-19.066	93.393	2.682	-.256	8.226	.927	163.400
2525.0	48056.3	879.5	-19.233	93.590	2.406	-.147	9.046	.916	162.014
2526.0	47767.9	876.6	-19.092	93.969	2.233	.128	9.389	.914	163.361
2527.0	47482.9	879.7	-18.774	94.426	1.629	.457	9.262	.917	167.021
2528.0	47201.4	882.9	-18.462	94.797	.380	.516	9.015	.921	170.762
2529.0	46923.3	886.2	-18.180	95.094	-.604	.472	8.684	.925	174.602
2530.0	46647.9	888.3	-17.980	94.731	-.173	-.141	8.364	.928	177.968
2531.0	46374.6	890.1	-17.807	94.430	1.523	-.611	7.997	.930	181.243
2532.0	46103.1	891.5	-17.693	94.235	3.660	-.840	7.371	.932	184.376
2533.0	45831.8	890.6	-17.760	94.228	5.242	-.727	6.755	.932	186.698
2534.0	45558.9	886.0	-18.017	94.403	4.803	-.298	6.588	.928	187.622
2535.0	45283.6	881.7	-18.263	94.503	3.348	.008	6.880	.924	188.716
2536.0	45006.9	877.2	-18.337	94.552	2.881	.121	7.865	.920	189.719
2537.0	44732.9	871.0	-18.147	94.765	2.965	.321	8.533	.914	189.839
2538.0	44464.7	864.1	-17.844	94.999	.524	.443	8.708	.908	189.547
2539.0	44203.0	856.7	-17.548	95.073	-3.780	.467	8.680	.900	188.946
2540.0	43947.5	849.6	-17.298	94.908	-8.478	.458	8.632	.893	188.405
2541.0	43697.0	846.4	-17.065	94.813	-13.083	.594	8.756	.890	189.440
2542.0	43450.6	844.0	-16.809	94.599	-15.760	.756	9.109	.888	190.793
2543.0	43208.6	841.7	-16.542	94.284	-18.598	1.131	9.447	.886	192.146
2544.0	42971.4	838.5	-16.244	93.764	-23.676	1.348	9.761	.883	193.050
2545.0	42739.4	834.3	-15.992	92.747	-29.725	1.224	9.863	.878	193.389
2546.0	42511.2	829.4	-15.869	91.431	-35.059	1.009	9.875	.873	193.399
2547.0	42285.5	824.2	-15.847	89.898	-39.497	.931	9.986	.868	193.188
2548.0	42061.0	818.7	-15.924	88.134	-43.393	.729	9.809	.863	192.834
2549.0	41835.7	814.0	-16.185	86.266	-47.230	.533	9.550	.858	192.789

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2550.0	41607.2	809.6	-16.579	84.118	-51.060	.339	9.573	.853	192.831
2551.0	41374.2	805.1	-17.028	81.741	-53.607	.162	9.692	.848	192.833
2552.0	41136.4	800.8	-17.517	79.261	-54.864	.048	9.819	.843	192.998
2553.0	40893.2	796.7	-18.015	76.739	-55.824	-.053	9.782	.839	193.236
2554.0	40644.7	792.4	-18.531	74.235	-56.173	-.117	9.863	.833	193.122
2555.0	40391.2	787.9	-19.025	71.636	-57.053	-.316	9.806	.828	192.980
2556.0	40132.2	783.7	-19.599	69.097	-57.748	-.448	9.786	.823	193.015
2557.0	39867.3	779.8	-20.162	66.525	-57.460	-.295	9.983	.818	193.213
2558.0	39596.9	776.0	-20.683	63.876	-57.896	-.240	9.915	.813	193.521
2559.0	39320.8	772.6	-21.273	61.221	-59.476	-.282	9.875	.809	194.067
2560.0	39038.2	769.9	-21.921	58.489	-60.968	-.233	9.873	.805	194.976
2561.0	38748.0	768.5	-22.630	55.702	-61.845	-.179	9.686	.802	196.556
2562.0	38449.4	768.6	-23.285	52.761	-61.985	-.138	10.065	.801	198.862
2563.0	38143.7	768.4	-23.809	49.567	-61.994	-.144	10.232	.800	201.101
2564.0	37831.7	767.7	-24.386	46.389	-62.007	-.265	9.728	.798	203.138
2565.0	37512.5	765.8	-25.067	43.333	-60.303	-.307	9.305	.794	204.492
2566.0	37186.2	764.5	-25.660	40.320	-57.497	-.417	9.087	.791	206.235
2567.0	36854.6	763.9	-26.019	37.325	-54.312	-.631	9.009	.789	208.422
2568.0	36520.2	765.7	-26.102	34.465	-52.061	-.543	8.746	.789	211.779
2569.0	36184.2	767.5	-26.215	31.669	-52.623	-.445	8.250	.789	215.239
2570.0	35845.3	769.5	-26.414	28.927	-53.169	-.464	8.140	.790	218.944
2571.0	35503.7	771.4	-26.513	26.164	-53.150	-.518	8.388	.790	222.656
2572.0	35160.9	772.2	-26.525	23.332	-52.763	-.520	8.490	.789	225.838
2573.0	34817.9	773.0	-26.493	20.479	-52.615	-.460	8.519	.789	229.023
2574.0	34475.3	774.4	-26.374	17.561	-51.994	-.302	8.586	.788	232.626
2575.0	34134.4	775.0	-26.162	14.659	-49.215	-.102	8.329	.787	235.771
2576.0	33795.9	776.1	-25.921	12.147	-46.700	-.006	8.189	.787	239.238
2577.0	33460.4	777.2	-25.591	9.735	-46.998	.014	8.137	.787	242.704
2578.0	33128.2	777.9	-25.335	7.330	-47.823	.115	8.307	.786	245.990
2579.0	32799.1	776.7	-25.052	4.735	-47.598	.249	8.806	.783	248.027



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2580.0	32475.3	772.9	-24.679	1.886	-46.212	.420	8.666	.778	248.300
2581.0	32157.3	769.6	-24.348	-.808	-43.904	.372	8.229	.773	248.824
2582.0	31844.9	766.3	-23.981	-3.311	-40.917	.124	7.862	.768	249.251
2583.0	31538.7	761.7	-23.611	-5.688	-38.157	-.159	7.533	.762	248.800
2584.0	31238.9	757.4	-23.198	-7.872	-35.035	-.318	7.281	.757	248.473
2585.0	30946.0	753.3	-22.781	-9.857	-33.640	-.482	7.075	.751	248.181
2586.0	30659.0	752.1	-22.384	-11.696	-33.002	-.423	6.915	.749	249.922
2587.0	30376.9	751.0	-22.023	-13.467	-32.617	-.181	6.914	.747	251.767
2588.0	30100.3	749.4	-21.566	-15.343	-32.737	.030	6.703	.745	253.247
2589.0	29828.9	747.9	-21.323	-17.073	-33.639	-.029	6.114	.743	254.715
2590.0	29560.0	745.3	-21.189	-18.585	-34.200	-.200	6.106	.739	255.379
2591.0	29294.0	742.2	-21.039	-20.097	-34.567	-.447	6.058	.735	255.708
2592.0	29030.6	739.0	-20.944	-21.529	-35.262	-.473	6.122	.731	255.926
2593.0	28769.5	736.2	-20.826	-23.221	-36.298	-.455	6.028	.728	256.403
2594.0	28510.1	734.2	-20.799	-24.941	-36.037	-.437	5.821	.725	257.403
2595.0	28251.5	732.3	-20.795	-26.635	-36.878	-.311	5.943	.723	258.495
2596.0	27993.8	730.4	-20.761	-28.499	-38.839	-.224	5.966	.720	259.610
2597.0	27736.8	727.2	-20.808	-30.422	-40.090	-.209	6.358	.716	259.687
2598.0	27481.5	722.8	-20.675	-32.527	-40.354	-.181	6.886	.711	258.766
2599.0	27230.1	717.8	-20.444	-34.751	-40.326	-.143	6.889	.705	257.428
2600.0	26982.5	713.3	-20.339	-36.892	-40.564	-.165	6.731	.700	256.347
2601.0	26737.0	708.1	-20.335	-38.923	-40.798	-.080	6.861	.694	254.748
2602.0	26493.6	702.9	-20.257	-41.069	-39.901	-.070	7.007	.688	253.086
2603.0	26253.2	697.6	-20.137	-43.117	-37.452	-.140	6.969	.682	251.310
2604.0	26016.0	692.2	-19.978	-44.995	-35.490	-.087	7.201	.676	249.387
2605.0	25783.3	688.3	-19.644	-46.940	-34.395	-.126	7.269	.672	248.463
2606.0	25555.6	685.5	-19.299	-48.747	-32.358	-.080	7.075	.668	248.366
2607.0	25332.4	682.8	-18.988	-50.364	-30.033	.080	6.992	.665	248.262
2608.0	25113.5	680.3	-18.700	-51.835	-29.593	.289	6.918	.662	248.303
2609.0	24898.1	677.9	-18.495	-53.328	-31.022	.570	6.952	.659	248.283

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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2610.0	24685.1	673.8	-18.430	-55.071	-31.100	.625	6.967	.654	247.037
2611.0	24474.2	669.8	-18.347	-56.828	-30.235	.574	6.847	.650	245.792
2612.0	24265.2	665.8	-18.296	-58.584	-30.385	.366	6.632	.645	244.560
2613.0	24057.5	662.1	-18.351	-60.306	-32.243	.232	6.593	.641	243.473
2614.0	23850.0	658.8	-18.398	-62.063	-32.134	.156	6.815	.637	242.754
2615.0	23643.5	656.5	-18.338	-63.806	-31.811	.216	6.870	.635	242.720
2616.0	23438.2	654.6	-18.309	-65.518	-31.489	.272	6.934	.632	243.005
2617.0	23234.1	652.6	-18.192	-67.257	-31.115	.380	6.993	.630	243.195
2618.0	23031.8	650.6	-18.141	-68.908	-31.035	.572	6.642	.627	243.357
2619.0	22829.2	647.7	-18.352	-70.536	-32.476	.658	6.685	.624	242.832
2620.0	22625.4	642.6	-18.562	-72.375	-33.925	.635	6.964	.619	240.727
2621.0	22420.8	638.0	-18.785	-74.321	-34.780	.559	7.386	.614	238.965
2622.0	22216.1	633.3	-18.865	-76.439	-35.509	.442	7.647	.609	237.079
2623.0	22011.7	628.9	-19.001	-78.580	-36.043	.340	7.915	.604	235.426
2624.0	21807.9	625.5	-18.961	-80.867	-36.055	.316	8.182	.600	234.497
2625.0	21606.0	623.2	-18.782	-83.263	-36.035	.168	8.323	.598	234.198
2626.0	21407.4	620.6	-18.513	-85.766	-36.240	-.114	8.184	.595	233.699
2627.0	21211.8	618.2	-18.342	-88.189	-36.020	-.354	7.905	.592	233.434
2628.0	21018.1	616.1	-18.242	-90.475	-34.953	-.453	7.875	.589	233.200
2629.0	20826.4	613.9	-18.040	-92.711	-34.029	-.323	8.252	.586	232.917
2630.0	20638.4	611.5	-17.676	-95.061	-33.361	-.306	8.311	.584	232.447
2631.0	20454.6	609.3	-17.350	-97.346	-32.716	-.322	8.125	.581	232.060
2632.0	20274.5	607.3	-17.079	-99.607	-33.366	-.436	8.004	.579	231.826
2633.0	20097.0	605.4	-16.917	-101.865	-33.848	-.632	8.162	.576	231.642
2634.0	19921.7	603.7	-16.684	-104.160	-33.446	-.792	8.355	.574	231.559
2635.0	19750.3	601.8	-16.256	-106.422	-32.184	-.768	8.375	.572	231.391
2636.0	19584.1	600.0	-15.774	-108.608	-30.625	-.695	8.228	.570	231.199
2637.0	19422.9	598.2	-15.343	-110.669	-30.368	-.853	7.997	.568	231.017
2638.0	19266.0	596.6	-15.024	-112.643	-30.402	-.993	7.866	.566	230.953
2639.0	19112.3	595.1	-14.740	-114.550	-29.923	-.846	8.161	.564	230.894

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2640.0	18962.6	593.2	-14.279	-116.546	-29.616	-.584	8.664	.562	230.582
2641.0	18818.6	590.9	-13.752	-118.589	-29.315	-.404	8.539	.559	229.769
2642.0	18679.4	588.6	-13.412	-120.544	-29.058	-.300	8.326	.557	229.022
2643.0	18543.7	586.7	-13.126	-122.485	-29.262	-.363	8.270	.555	228.458
2644.0	18411.2	584.8	-12.854	-124.454	-30.354	-.528	8.275	.553	227.960
2645.0	18281.7	583.0	-12.589	-126.530	-31.078	-.632	8.355	.551	227.469
2646.0	18155.5	581.0	-12.280	-128.628	-30.642	-.626	8.241	.548	226.818
2647.0	18032.1	579.2	-12.111	-130.608	-30.363	-.647	7.907	.546	226.250
2648.0	17909.9	577.6	-12.080	-132.486	-30.003	-.642	7.724	.545	225.851
2649.0	17788.1	576.8	-12.061	-134.277	-29.841	-.560	7.770	.544	226.111
2650.0	17666.9	576.1	-11.998	-136.102	-31.207	-.510	7.759	.542	226.344
2651.0	17545.9	575.5	-12.046	-137.995	-32.817	-.452	7.568	.542	226.675
2652.0	17424.0	575.0	-12.213	-139.949	-34.061	-.368	7.441	.541	227.093
2653.0	17300.1	574.7	-12.414	-141.975	-34.158	-.376	7.594	.540	227.712
2654.0	17174.9	574.3	-12.496	-144.039	-33.852	-.409	7.759	.539	228.211
2655.0	17049.3	573.8	-12.515	-146.135	-33.696	-.394	7.783	.539	228.694
2656.0	16923.5	573.4	-12.563	-148.203	-33.552	-.474	7.623	.538	229.204
2657.0	16796.9	572.5	-12.685	-150.195	-33.414	-.499	7.447	.537	229.414
2658.0	16669.2	571.7	-12.873	-152.130	-33.834	-.493	7.125	.536	229.708
2659.0	16538.7	571.3	-13.261	-153.925	-34.510	-.339	6.893	.535	230.303
2660.0	16403.8	571.2	-13.801	-155.667	-35.073	-.031	6.817	.535	231.246
2661.0	16263.3	571.3	-14.392	-157.464	-36.069	.094	6.703	.535	232.373
2662.0	16116.3	571.8	-15.136	-159.224	-37.712	.089	6.729	.535	233.821
2663.0	15962.2	572.4	-15.779	-161.166	-39.019	.170	7.150	.535	235.506
2664.0	15802.5	573.8	-16.270	-163.286	-39.229	.317	7.215	.536	237.814
2665.0	15637.5	575.9	-16.774	-165.390	-39.428	.308	7.181	.537	240.752
2666.0	15467.3	578.2	-17.201	-167.519	-39.456	.320	7.186	.539	243.883
2667.0	15292.5	580.7	-17.615	-169.671	-39.567	.335	7.028	.541	247.259
2668.0	15112.8	583.3	-18.038	-171.801	-39.659	.310	6.902	.543	250.691
2669.0	14928.1	586.2	-18.475	-173.880	-39.743	.366	6.868	.545	254.569

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2670.0	14738.4	589.5	-18.844	-176.120	-39.947	.386	6.742	.548	258.981
2671.0	14544.0	593.3	-19.223	-178.377	-40.176	.371	6.599	.551	263.940
2672.0	14344.8	597.1	-19.567	179.337	-40.351	.395	6.475	.554	268.951
2673.0	14141.0	600.5	-19.920	176.989	-41.460	.286	6.215	.557	273.780
2674.0	13932.3	604.0	-20.315	174.572	-42.532	.062	5.924	.560	278.798
2675.0	13718.6	604.9	-20.758	172.176	-42.814	-.087	5.800	.560	281.536
2676.0	13500.6	605.4	-21.137	169.706	-41.967	-.281	5.639	.560	283.915
2677.0	13279.1	605.4	-21.451	167.366	-39.718	-.364	5.667	.560	285.944
2678.0	13055.3	604.6	-21.634	165.033	-40.193	-.464	5.710	.559	287.253
2679.0	12830.5	603.4	-21.735	162.492	-40.492	-.491	5.791	.557	288.117
2680.0	12605.7	602.5	-21.736	159.807	-39.014	-.526	5.667	.556	289.225
2681.0	12381.5	601.1	-21.710	157.293	-36.149	-.570	5.544	.554	289.884
2682.0	12158.3	599.1	-21.642	155.049	-31.895	-.579	5.427	.552	289.988
2683.0	11937.1	596.8	-21.456	153.043	-28.705	-.579	5.214	.549	289.704
2684.0	11718.8	594.3	-21.305	151.191	-27.307	-.668	4.993	.546	289.264
2685.0	11502.3	592.0	-21.231	149.579	-22.399	-.651	4.841	.544	289.075
2686.0	11287.1	589.9	-21.192	148.355	-15.648	-.538	4.767	.542	289.025
2687.0	11073.4	587.8	-21.081	147.499	-9.910	-.439	4.828	.539	288.979
2688.0	10861.5	586.1	-20.978	146.988	-5.955	-.369	4.687	.538	289.404
2689.0	10650.7	586.3	-20.904	147.026	-2.039	-.015	4.599	.538	292.050
2690.0	10440.6	586.1	-20.833	147.331	.935	.570	4.564	.538	294.426
2691.0	10231.3	585.8	-20.751	147.720	2.950	1.233	4.388	.538	296.670
2692.0	10022.6	585.5	-20.741	148.076	3.365	1.577	4.205	.538	298.893
2693.0	9814.1	583.9	-20.723	148.098	2.190	1.362	4.516	.537	299.698
2694.0	9607.8	580.8	-20.482	147.891	2.308	.815	4.711	.534	298.738
2695.0	9405.1	577.9	-20.237	147.850	4.603	.525	4.594	.531	297.949
2696.0	9205.4	575.7	-19.952	148.048	6.720	.521	4.869	.529	297.911
2697.0	9010.9	573.8	-19.321	148.398	7.319	.637	4.948	.527	297.997
2698.0	8822.8	571.2	-18.778	148.781	6.077	.868	4.956	.524	297.137
2699.0	8640.5	567.6	-18.319	149.022	4.104	1.053	4.974	.521	294.932

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 91 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2700.0	8463.3	564.2	-17.851	149.108	2.771	1.162	5.230	.517	292.832
2701.0	8292.3	560.5	-17.380	149.076	1.173	1.070	4.490	.513	290.433
2702.0	8123.6	557.4	-17.492	148.881	-1.053	.833	4.469	.510	288.585
2703.0	7955.3	554.3	-17.448	148.562	-2.173	.532	4.758	.507	286.723
2704.0	7788.7	552.7	-17.326	148.410	-2.613	.352	4.567	.505	286.337
2705.0	7623.0	551.4	-17.348	148.332	-2.916	.274	4.310	.503	286.364
2706.0	7456.8	550.2	-17.528	148.326	-1.186	.299	4.050	.502	286.389
2707.0	7288.4	549.2	-17.865	148.438	.395	.375	4.110	.500	286.643
2708.0	7118.1	548.0	-17.998	148.558	.173	.393	4.084	.499	286.734
2709.0	6946.1	546.6	-18.430	148.668	1.043	.414	3.736	.497	286.600
2710.0	6770.2	545.1	-18.822	148.646	1.229	.233	4.158	.495	286.561
2711.0	6593.1	542.8	-18.885	148.623	1.447	.154	4.183	.493	285.739
2712.0	6415.8	540.3	-19.088	148.607	1.700	.191	3.957	.491	284.775
2713.0	6237.1	538.1	-19.325	148.539	1.005	.228	4.089	.488	284.006
2714.0	6057.4	536.1	-19.455	148.315	-.584	-.000	4.337	.486	283.478
2715.0	5878.2	534.0	-19.408	148.066	-.775	-.319	4.360	.484	282.908
2716.0	5699.5	532.1	-19.519	148.038	-.024	-.404	4.245	.482	282.620
2717.0	5519.9	530.7	-19.684	148.076	1.033	-.467	4.432	.481	282.858
2718.0	5340.1	529.6	-19.682	148.217	.467	-.484	4.554	.480	283.374
2719.0	5160.5	528.8	-19.680	148.335	-.533	-.357	4.852	.479	284.196
2720.0	4982.6	527.5	-19.420	148.414	-.511	-.077	4.850	.478	284.479
2721.0	4806.7	527.3	-19.297	148.402	-.664	.077	4.605	.477	285.864
2722.0	4631.7	527.7	-19.149	148.310	-.845	.026	4.665	.477	287.802
2723.0	4458.6	527.8	-18.874	148.180	-1.257	-.205	4.514	.477	289.393
2724.0	4287.5	527.5	-18.719	148.067	-.570	-.435	4.328	.477	290.762
2725.0	4117.6	527.0	-18.554	148.079	.849	-.542	4.460	.476	291.672
2726.0	3950.2	526.3	-18.268	148.185	1.091	-.492	4.367	.475	292.373
2727.0	3784.9	524.4	-18.150	148.311	1.281	-.437	4.248	.473	291.649
2728.0	3620.7	522.0	-18.179	148.402	-.081	-.312	4.203	.471	290.257
2729.0	3457.0	519.8	-18.112	148.346	-.791	-.224	4.636	.468	289.056

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2730.0	3295.9	517.3	-17.833	148.336	.429	-.249	4.539	.466	287.504
2731.0	3137.1	514.8	-17.778	148.470	1.318	-.228	4.442	.463	285.974
2732.0	2979.3	512.2	-17.742	148.580	.517	-.171	4.509	.460	284.318
2733.0	2822.7	508.9	-17.719	148.680	.609	-.100	4.509	.457	282.148
2734.0	2667.1	505.2	-17.744	148.797	.241	-.017	4.612	.454	279.695
2735.0	2512.7	501.7	-17.690	148.865	-.687	-.037	4.697	.451	277.519
2736.0	2359.4	498.5	-17.779	148.908	-.648	.045	4.646	.448	275.620
2737.0	2205.9	495.8	-17.903	148.943	-.319	.151	4.792	.446	274.345
2738.0	2052.4	494.0	-17.997	148.990	-.293	.190	4.862	.444	273.933
2739.0	1897.8	493.1	-18.255	149.052	-.363	.205	4.905	.444	274.651
2740.0	1741.0	493.4	-18.535	149.122	.009	.286	5.335	.444	276.630
2741.0	1582.9	494.1	-18.501	149.229	.592	.362	5.647	.445	279.141
2742.0	1425.1	495.1	-18.357	149.348	.683	.383	6.286	.446	281.976
2743.0	1270.9	495.3	-17.647	149.446	.407	.349	6.385	.446	284.056
2744.0	1121.6	495.5	-17.124	149.518	.294	.248	6.608	.447	285.902
2745.0	978.0	495.0	-16.233	149.600	.035	.206	7.125	.446	286.938
2746.0	843.5	493.7	-15.073	149.654	.740	.144	7.194	.445	286.945
2747.0	718.7	491.9	-13.984	149.808	1.182	.135	7.237	.444	286.329
2748.0	603.6	489.4	-12.873	149.925	.224	.073	7.364	.442	284.726
2749.0	498.6	486.4	-11.658	149.969	-.305	.044	7.604	.439	282.318
2750.0	405.1	482.6	-10.293	149.983	-.200	.040	7.738	.436	278.848
2751.0	323.8	478.1	-8.965	150.006	-.219	-.008	7.591	.432	274.545
2752.0	253.0	473.4	-7.911	150.048	-.060	.075	7.424	.427	269.939
2753.0	190.9	468.3	-6.968	150.087	.066	.114	7.346	.423	264.858
2754.0	136.5	463.2	-6.244	150.150	-.032	.121	7.017	.418	259.629
2755.0	86.9	458.4	-5.851	150.205	-.391	.150	7.095	.414	254.746
2756.0	41.3	453.2	-5.280	150.211	-1.117	.203	7.450	.409	249.516
2757.0	1.1	446.9	-4.740	150.121	-2.532	.230	7.324	.404	242.969
2758.0	-35.5	440.1	-4.463	149.911	-4.074	.299	7.748	.398	236.002
2759.0	-68.1	432.4	-3.739	149.576	-4.185	.418	8.277	.391	228.046

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 93 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2760.0	-94.9	424.8	-3.219	149.271	-2.688	.619	8.296	.384	220.133
2761.0	-117.6	417.2	-2.636	149.095	-.777	.703	8.884	.377	212.315
2762.0	-134.7	409.1	-1.814	149.056	-.608	.641	8.984	.370	204.356
2763.0	-146.4	401.2	-1.308	149.008	.630	.697	8.573	.362	196.415
2764.0	-156.0	393.9	-1.214	149.108	1.955	.692	8.565	.356	189.413
2765.0	-164.6	386.4	-.945	149.231	2.016	.595	9.234	.349	182.240
2766.0	-169.1	378.4	-.146	149.427	2.489	.587	9.003	.342	174.820
2767.0	-170.2	370.9	.001	149.611	1.838	.456	8.626	.335	167.970
2768.0	-171.3	363.8	-.079	149.755	1.330	.409	8.623	.329	161.583
2769.0	-173.2	357.0	-.270	149.866	.845	.404	8.644	.322	155.583
2770.0	-176.5	350.5	-.483	149.935	.507	.394	8.972	.317	149.988
2771.0	-179.9	343.8	-.272	149.989	.315	.384	9.148	.311	144.274
2772.0	-181.4	337.2	-.050	150.037	.128	.395	8.721	.305	138.836
2773.0	-182.8	330.9	-.083	150.031	-.186	.376	8.510	.299	133.696
2774.0	-183.2	324.4	.183	149.980	-.071	.371	7.520	.293	128.460
2775.0	-183.1	319.3	.125	149.943	.106	.287	7.382	.288	124.443
2776.0	-183.2	314.2	.113	149.953	.066	.224	7.343	.284	120.524
2777.0	-183.3	309.3	.146	149.981	-.028	.193	7.246	.279	116.805
2778.0	-183.2	304.5	.200	149.996	-.127	.153	6.307	.275	113.179
2779.0	-182.4	300.0	.296	150.039	-.184	.195	5.425	.271	109.903
2780.0	-182.2	295.7	.104	150.060	-.152	.289	5.486	.267	106.726
2781.0	-182.9	291.4	-.096	150.042	-.081	.276	4.501	.263	103.669
2782.0	-183.7	287.0	.082	150.045	-.134	.238	3.314	.259	100.571
2783.0	-184.0	282.6	.060	150.058	-.102	.267	2.321	.255	97.505
2784.0	-184.2	277.8	.136	150.070	-.099	.230	.927	.251	94.219
2785.0	-184.1	271.9	.194	150.108	-.101	.229	-1.071	.246	90.289
2786.0	-184.3	264.1	.011	150.150	-.068	.320	-2.609	.239	85.152
2787.0	-184.3	256.5	.245	150.141	.021	.335	-3.198	.232	80.317
2788.0	-184.4	251.1	-.009	150.135	.078	.368	-3.286	.227	76.965
2789.0	-184.7	246.0	.158	150.076	.093	.501	-3.662	.222	73.862

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2790.0	-184.7	240.9	.131	149.934	.090	.547	-3.606	.218	70.871
2791.0	-184.7	236.0	.144	149.811	.080	.478	-3.628	.213	68.001
2792.0	-184.6	231.3	.169	149.750	.066	.377	-3.654	.209	65.296
2793.0	-184.6	226.4	.124	149.735	.001	.205	-3.657	.204	62.570
2794.0	-184.6	221.5	.151	149.890	-.055	-.076	-3.705	.200	59.891
2795.0	-184.5	216.7	.174	150.192	-.105	-.147	-3.737	.196	57.351
2796.0	-184.4	211.1	.150	150.265	-.008	.103	-3.846	.191	54.389
2797.0	-184.4	204.9	.143	150.151	.008	.167	-3.728	.185	51.239
2798.0	-184.5	200.3	.096	150.083	.065	.175	-3.742	.181	48.991
2799.0	-184.6	195.2	.125	149.980	.128	.026	-3.772	.176	46.521
2800.0	-184.6	190.2	.149	150.042	.093	.029	-3.790	.172	44.165
2801.0	-184.6	185.3	.123	150.068	.094	-.109	-3.815	.167	41.904
2802.0	-184.6	179.1	.167	150.130	.173	-.011	-3.891	.162	39.181
2803.0	-184.6	173.0	.113	150.122	.213	.132	-3.847	.156	36.548
2804.0	-184.6	166.6	.138	150.071	.130	.155	-3.879	.150	33.890
2805.0	-184.7	160.7	.129	150.008	.082	.188	-3.879	.145	31.538
2806.0	-184.7	155.1	.154	149.867	.185	.249	-3.898	.140	29.376
2807.0	-184.6	149.5	.155	149.770	.163	.180	-3.909	.135	27.305
2808.0	-184.6	144.8	.108	149.755	.124	.053	-3.847	.131	25.605
2809.0	-184.7	140.1	.136	149.839	.116	-.040	-3.867	.127	23.963
2810.0	-184.6	135.8	.222	149.936	.080	-.018	-3.937	.123	22.522
2811.0	-184.5	131.7	.110	149.939	.076	.067	-3.822	.119	21.176
2812.0	-184.5	127.4	.144	149.896	.075	.068	-3.891	.115	19.808
2813.0	-184.6	123.0	.125	149.892	.067	-.044	-3.870	.111	18.470
2814.0	-184.6	118.9	.147	149.950	.019	-.108	-3.892	.107	17.254
2815.0	-184.5	114.3	.203	150.012	.053	-.034	-3.960	.103	15.951
2816.0	-184.4	109.9	.170	150.018	.050	-.023	-3.934	.099	14.739
2817.0	-184.3	105.6	.174	150.028	.062	-.019	-3.937	.095	13.611
2818.0	-184.3	101.4	.189	150.022	.084	.001	-3.954	.092	12.555
2819.0	-184.2	97.3	.128	149.985	.032	.007	-3.895	.088	11.553



TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	NACHA (-)	QA (PSF)
2820.0	-184.3	93.1	.095	149.960	.022	-.016	-3.867	.084	10.578
2821.0	-184.3	89.2	.123	149.910	.048	-.057	-3.891	.081	9.704
2822.0	-184.3	85.0	.229	149.909	.056	-.049	-4.008	.077	8.827
2823.0	-184.2	80.8	.161	149.955	.016	-.108	-3.947	.073	7.976
2824.0	-184.2	76.6	.084	149.906	-.024	-.020	-3.917	.069	7.162
2825.0	-184.2	72.0	.194	149.854	.056	.013	-3.955	.065	6.329
2826.0	-184.2	67.3	.119	149.891	.041	-.096	-3.885	.061	5.525
2827.0	-184.2	62.7	.196	150.113	-.011	-.050	-4.012	.057	4.801
2828.0	-184.1	58.2	.233	150.115	.015	-.051	-4.047	.053	4.137
2829.0	-184.0	53.6	.206	150.057	.026	-.038	-4.021	.048	3.510
2830.0	-183.9	49.2	.308	150.053	.004	-.092	-4.118	.044	2.951
2831.0	-183.8	44.7	.233	150.192	-.006	-.019	-4.055	.040	2.442
2832.0	-183.7	40.4	.329	150.224	-.002	.025	-4.156	.036	1.990
2833.0	-183.6	36.0	.275	150.140	.025	.014	-4.095	.033	1.584
2834.0	-183.6	32.0	.051	149.921	-.017	-.047	-3.854	.029	1.254
2835.0	-183.6	28.3	.008	149.724	.015	-.063	-3.807	.026	.976
2836.0	-183.6	24.9	.339	149.605	.010	-.097	-4.127	.023	.759
2837.0	-183.6	21.5	.276	149.613	.012	-.142	-4.071	.019	.565
2838.0	-183.5	16.7	.533	149.962	.009	.152	-4.356	.015	.342
2839.0	-183.4	11.4	.162	149.849	-.023	-.001	-4.015	.010	.158
2840.0	-183.4	6.0	.820	149.754	-.030	-.079	-4.672	.005	.044
2841.0	-183.3	1.1	2.154	149.713	-.030	-.106	-6.010	.001	.001
2842.0	-183.2	.2	73.039	84.414	-64.442	-15.346	-86.547	.000	.000
2843.0	-183.0	.2	80.263	151.402	1.550	.293	-84.025	.000	.000
2844.0	-182.9	.2	5.822	143.776	-.643	-6.011	-9.621	.000	.000
2845.0	-182.9	.1	8.008	136.416	-1.932	-13.273	-12.001	.000	.000
2846.0	-182.9	.2	11.087	147.969	-.386	-1.819	-14.859	.000	.000
2847.0	-182.8	.2	8.283	145.074	-.719	-4.700	-12.077	.000	.000
2848.0	-182.8	.1	19.497	154.237	1.452	4.164	-23.308	.000	.000
2849.0	-182.8	.2	7.392	150.082	.004	.258	-11.155	.000	.000

TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2850.0	-182.7	.1	16.664	142.090	-2.263	-7.403	-20.576	.000	.000
2851.0	-182.7	.1	10.467	146.783	-.584	-2.993	-14.244	.000	.000
2852.0	-182.7	.2	13.805	152.786	.676	2.880	-17.579	.000	.000
2853.0	-182.6	.2	12.780	144.463	-1.217	-5.225	-16.598	.000	.000
2854.0	-182.6	.1	20.735	154.591	1.667	4.464	-24.569	.000	.000
2855.0	-182.5	.2	22.120	145.612	-1.614	-3.896	-25.941	.000	.000
2856.0	-182.5	.1	10.404	150.168	.036	.335	-14.160	.000	.000
2857.0	-182.5	.1	17.100	147.685	-.654	-2.042	-20.878	.000	.000
2858.0	-182.4	.1	6.404	155.311	.587	5.450	-10.198	.000	.000
2859.0	-182.4	.1	17.510	153.590	1.100	3.600	-21.307	.000	.000
2860.0	-182.4	.1	16.198	147.513	-.672	-2.210	-19.974	.000	.000
2861.0	-182.3	.1	11.241	141.638	-1.635	-8.026	-15.124	.000	.000
2862.0	-182.3	.1	12.495	161.951	2.629	11.839	-16.527	.000	.000
2863.0	-182.3	.1	18.119	155.283	1.674	5.196	-21.957	.000	.000
2864.0	-182.2	.1	10.575	154.159	.767	4.265	-14.367	.000	.000
2865.0	-182.2	.1	14.122	154.446	1.101	4.486	-17.925	.000	.000
2866.0	-182.2	.1	11.805	155.386	1.112	5.447	-15.621	.000	.000
2867.0	-182.2	.1	7.628	152.759	.362	2.908	-11.400	.000	.000
2868.0	-182.1	.1	16.011	158.501	2.382	8.342	-19.945	.000	.000
2869.0	-182.1	.1	17.485	147.262	-.798	-2.443	-21.262	.000	.000
2870.0	-182.1	.2	11.133	152.405	.474	2.537	-14.908	.000	.000
2871.0	-182.0	.2	7.368	147.741	-.297	-2.065	-11.140	.000	.000
2872.0	-182.0	.2	19.463	147.919	-.662	-1.794	-23.239	.000	.000
2873.0	-182.0	.1	15.443	154.730	1.273	4.739	-19.256	.000	.000
2874.0	-181.9	.1	10.296	152.745	.487	2.882	-14.069	.000	.000
2875.0	-181.9	.1	12.255	147.309	-.566	-2.453	-16.031	.000	.000
2876.0	-181.9	.1	8.301	153.844	.542	3.983	-12.079	.000	.000
2877.0	-181.8	.1	19.382	151.982	.681	2.045	-23.153	.000	.000
2878.0	-181.8	.1	15.013	161.035	2.901	10.833	-19.047	.000	.000
2879.0	-181.8	.2	12.649	152.331	.509	2.452	-16.419	.000	.000

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 \* ST11BET USING FLAIR11(4/13/84),INERTIAL-BT11A12,NJ0124 DYN. DATA. PAGE 97 \*  
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TIME (SEC)	ALTDE (FT)	VELA (FPS)	GAMA (DEG)	HDGA (DEG)	SIGMAA (DEG)	BETAA (DEG)	ALPHAA (DEG)	MACHA (-)	QA (PSF)
2880.0	-181.7	.1	17.979	149.503	-.134	-.298	-21.739	.000	.000
2881.0	-181.7	.1	14.215	146.047	-.964	-3.656	-18.009	.000	.000
2882.0	-181.6	.2	20.797	147.310	-.935	-2.338	-24.577	.000	.000
2883.0	-181.6	.1	10.352	157.050	1.263	7.113	-14.187	.000	.000
2884.0	-181.6	.1	7.423	151.884	.228	2.049	-11.186	.000	.000
2885.0	-181.6	.2	17.275	154.750	1.424	4.716	-21.090	.000	.000

APPENDIX D

Data Archival - Source  
and Output Products

D. 1 STS-11 Output Products

(a) FILES

<u>NAME</u>	<u>USER CATALOG</u>	<u>DESCRIPTION</u>
BT11A12	169750N	Final reconstructed trajectory (40 word format per AMA 81-1)
ST11BET	274885C	Final extended BET (66 word format per AMA 81-11)
NAVBT11	389102C	STS-11 onboard nav BET (66 word format)
FLAIR11	274885C	Final LAIRS file (ST11MET/UN=712662N with NOAA atmosphere below 65 kft)
TRWST11	274885C	Reformatted JSC/TRW BET (66 word format)
IMACP11	274885C	Signal difference file (IMU2-ACIP)
DFRCB11	274885C	Dryden Extended BET (66 word format)

b) TAPES

<u>REEL No.</u>	<u>DESCRIPTION</u>
NL0429	STS-11 AEROBET (201 words per AMA 82-9)
NF0349	Duplicate of above
NF0364	25 Hz IMU2 GTFILE (62 words per AMA 81-20)
NF0422	25 Hz ACIP GTFILE (62 words per AMA 81-20)
NV0449	25 Hz bias rectified ACIP file for GTFILE generation
NR0333	25 Hz IMU1 body axes @ ACIP
NR0422	25 Hz IMU2 body axes @ ACIP
NW0424	25 Hz IMU3 body axes @ ACIP
NR1029	25 Hz edited, "thinned", ACIP data (epoch 40570 GMT seconds)
NX0370	Final STS-11 residuals for BT11A12
NW0440	Edited tracking tape
NX0369	1 Hz OI-2 for AEROBET
NJ0124	20 Hz IMU2 file in body axes for ST11BET, AEROBET, and GTFILE (calibrated per BT11A12 solution)
NL0210	Dynamic data (input for trajectory reconstruction)- 20 Hz IMU2 data in platform coordinates (first CDC record)

D. 2 Source Tapes Received via NASA LaRC

(a) T/M TAPES

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<u>REEL NO.</u>	<u>DESCRIPTION</u>
ND0275	OI-1
NH0950	OI-2
NG1274	OI-3 (source for RGA1/AA1 data)
NH0626	OI-4
NF0335	OI-1 from CBET01

(b) ACIP TAPES

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<u>REEL NO.</u>	<u>DESCRIPTION</u>
ND0976	} ACIP housekeeping
NG1102	
ND0975	
NH1207	} 150 Hz linear cal ACIP
NM1025	
NH0783	

(c) TRACKING TAPES

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<u>REEL NO.</u>	<u>DESCRIPTION</u>
NG0938	JSC/TRW tracking data
NH0431	GSFC tracking data (Guam)
NX1233	GSFC tracking data (Hawaii and Merritt Island)

(d) OTHER

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<u>REEL NO.</u>	<u>DESCRIPTION</u>
NL0153	JSC/TRW Descent BET
ST5620 (MAINE5)	DFRF post-flight data
ST5621 (MAINE6)	DFRF post-flight data

1. Report No. NASA CR- 172349		2. Government Accession No.		3. Recipient's Catalog No.											
4. Title and Subtitle FINAL STS-11 (41-B) BEST ESTIMATE TRAJECTORY PRODUCTS: DEVELOPMENT AND RESULTS FROM THE FIRST CAPE LANDING MISSION				5. Report Date April 1984											
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12. Sponsoring Agency Name and Address National Aeronautics and Space Administration Washington, DC 20546				14. Sponsoring Agency Code 506-51-13-06											
15. Supplementary Notes Langley Technical Monitor: Harold R. Compton															
16. Abstract <p>STS-11 (41-B) post-flight data processing has been completed and the results published herein. The final reconstructed entry trajectory, as discussed in Section I, is BT11A12/UN=169750N. The final Extended BET, ST11BET/UN=274885C, merged this inertial file with an atmosphere (FLAIR11/UN=274885C) based on the LaRC LAIRS and National Weather Service data. Section II discusses the various atmospheric sources available for this flight. Aerodynamic BET generation and plots from this file are presented as Section III. The AEROBET for STS-11 (41-B) is on physical reel NL0429 (back-up on NF0349). MMLE input files generated are NF0364 (based on IMU2 data) and NF0422 (replacing the IMU data with rectified ACIP measurements, to include RGA yaw rate data in that channel due to the ACIP data loss during entry). This development, as well as a definition of the major maneuvers effected, is given in Section IV.</p> <p>Physical constants, including spacecraft mass properties; final residuals from the reconstruction process; trajectory parameter listings; and an archival section are included as appendices herein. Epoch and event times are summarized below for later referral:</p> <p style="text-align: center;"><u>EPOCH</u> February 11, 1984 11<sup>h</sup>29<sup>m</sup>40<sup>s</sup>.0 (41380<sup>s</sup>.0) GMT, h~827 kft</p> <table style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: left;"><u>Event</u></th> <th style="text-align: right;"><u>sec from Epoch</u></th> </tr> </thead> <tbody> <tr> <td>main gear deployment</td> <td style="text-align: right;">2757</td> </tr> <tr> <td>main gear touchdown (WOW)</td> <td style="text-align: right;">2774</td> </tr> <tr> <td>nose gear touchdown (WONG)</td> <td style="text-align: right;">2787</td> </tr> <tr> <td>stop time</td> <td style="text-align: right;">2842</td> </tr> </tbody> </table> <p>It should be noted that the AEROBET, due to insufficient OI data, does not start until 400 seconds from epoch at an altitude of h~672 kft.</p>						<u>Event</u>	<u>sec from Epoch</u>	main gear deployment	2757	main gear touchdown (WOW)	2774	nose gear touchdown (WONG)	2787	stop time	2842
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17. Key Words (Suggested by Author(s)) STS-11 (41B) Best Estimate Trajectory Spacecraft Dynamics Aerodynamic Performance Comparisons Atmospheric Evaluation			18. Distribution Statement  Unclassified - Unlimited  Subject Category 16												
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