NASA Contractor Report 3561

Reconstruction of the 1st Space Shuttle (STS-1) Entry Trajectory

J. T. Findlay, G. M. Kelly,
and M. L. Heck

CONTRACT NAS1-16087
JUNE 1982

NASA

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Prepared for
Langley Research Center
under Contract NAS1-16087

NASA
National Aeronautics
and Space Administration

Scientific and Technical
Information Office

1982

FOREWORD

The work was sponsored by NASA Langley Research Center under Contract NAS1-16087 to Analytical Mechanics Associates, Inc. The Technical Representative to the Contracting Officer is Mr. Harold R. Compton of the Aerothermodynamics Branch of the Space System Division. His management of this activity, support during software development and checkout, and leadership in establishing the necessary interfaces with the Johnson Space Center, the Goddard Space Flight Center, the Dryden Flight Research Center, and flight support personnel at Edwards Air Force Base has been instrumental in the generation of the post-flight entry reconstruction presented herein. Also, the LaRC Orbiter Experiments Data Manager, Ms. K. D. Brender, is acknowledged for her efforts in helping to establish the required interface as well as disseminating all of the required data. She, with contractual assistance from System Development Corporation, converted all of the required data for compatability with the LaRC computer system in an extremely timely manner. Also, the assistance of Ms. J. G. McConnell and Mr. M. W. Henry of AMA, Inc. in the generation of the BET and many of the final products in the report is greatly appreciated.

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LIST OF SYMBOLS

A_x	spacecraft linear acceleration along the X_B axis
A_y	spacecraft linear acceleration along the Y_B axis
A_z	spacecraft linear acceleration along the Z_B axis
C	computed observation
C_D	drag coefficient
C_L	lift coefficient
C_ℓ	rolling moment coefficient
C_m	pitching moment coefficient
C_n	yawing moment coefficient
C_{y_B}	side force coefficient
h	altitude above oblate planet
L/D	lift to drag ratio
M	Mach no.
O	observation
O-C	observation residual
P	spacecraft angular rate about the X_B axis
$\dot{P}$	spacecraft angular acceleration about the X_B axis
Q	spacecraft angular rate about the Y_B axis
$\dot{Q}$	spacecraft angular acceleration about the Y_B axis
q	dynamic pressure
R	spacecraft angular rate about the Z_B axis
$\dot{R}$	spacecraft angular acceleration about the Z_B axis

LIST OF SYMBOLS (continued)

u	North component of spacecraft inertial velocity
u_W	North-South wind component
v	East component of spacecraft inertial velocity
v_W	East-West wind component
w	vertical (positive downward) component of spacecraft inertial velocity
w_W	vertical (positive upward) wind component

LIST OF GREEK SYMBOLS

α	angle-of-attack, positive nose up
β	side-slip angle, positive nose left
γ	flight path angle, positive above the horizon
θ	Euler pitch angle, positive nose upward from horizon
λ	longitude, positive East of Greenwich prime meridian
μ	mean
σ	spacecraft roll angle about the velocity vector
σ	standard deviation
Φ_D	geodetic latitude
φ	Euler roll angle, positive right wing down
Ψ	velocity heading angle, positive clockwise from North
ψ	Euler yaw angle, positive clockwise from North

LIST OF SUBSCRIPTS

A	atmosphere relative
B	body axis
D	geodetic
R	planet relative
W	wind
W	weighted

LIST OF ACRONYMS

ACIP	Aerodynamic Coefficient Identification Package
ACME	Aerodynamic Coefficient Measurement Experiment
AFFTC	Air Force Flight Test Center
AMA	Analytical Mechanics Associates
AOS	Acquisition of signal
BET	Best Estimate Trajectory
DFRC	NASA Dryden Flight Research Center
EAFC	Edwards Air Force Base C-band radar
ENTREE	Entry Trajectory Reconstruction Software
FRCC	NASA Dryden Flight Research Center C-band radar
GMT	Greenwich Mean Time
GSFC	Goddard Space Flight Center
GWMS	Guam S-band station
IMU	Inertial Measurement Unit
JSC	Johnson Space Center
LAIRS	Langley Atmospheric Information Retrieval System
LaRC	NASA Langley Research Center
LOS	Loss of signal
MSBLS	Microwave Scanning Beam
M50	Inertial Mean Equator and Equinox of 1950.0 system
OEX	Orbiter Experiments
OI	Orbiter Instrumentation
PPTC	Pt. Pillar, California C-band station
PTPC	Pt. Pillar, California C-band station
REFSMMAT	IMU reference matrix
RMSW	Weighted root mean square
SNIC	St. Nicolas Island, California C-band station
STS	Space Transportation System
TACAN	Tactical Air Navigation
VDBC	Vandenberg C-band station
VDFC	Vandenberg C-band station
VDSC	Vandenberg C-band station

ABSTRACT

A discussion of the generation of the Best Estimate Trajectory (BET) of the first NASA Space Shuttle Orbiter entry flight (STS-1) as reported by Compton, et al., in Reference 1 is presented. This work was sponsored by NASA LaRC under Contract No. NAS1-16087 to the Analytical Mechanics Associates, Inc. The BET defines a time history of the state, attitude, and (combined with the best available atmosphere as defined by the Langley Atmosphere Information Retrieval System (LAIRS)) atmospheric relative parameters throughout the Shuttle entry from an altitude of approximately 183 km to rollout on Runway 23 on the Roger's dry lake bed at Edwards Air Force Base. The inertial parameters were estimated utilizing a weighted least squares batch filter algorithm. Spacecraft angular rate and acceleration data derived from the Inertial Measurement Unit (IMU) were utilized to predict the state and attitude which was constrained in a weighted least squares process to fit external tracking data consisting of ground based S-band and C-band data. In addition, refined spacecraft altitude and velocity during and post rollout were obtained by processing artificial altimeter and Doppler data.

Appendix A is presented to provide for a general discussion of the BET generation process. This includes both software and data interface discussions as well as a definition of the variables and coordinate systems utilized. STS-1 mission peculiar inputs are summarized in Appendix B. Though the report contains tables and figures which show the more relevant results, it is virtually impossible to present all the information in this form. Thus, Appendix C is included which provides a listing of the contents of the actual BET.

I. Introduction

The completion of the first successful flight of the Space Shuttle Columbia on April 14, 1981 opened a new era in NASA's manned spaceflight. Researchers at the NASA Langley Research Center, as well as others throughout the aerospace community, have proposed use of the Shuttle as a research vehicle for postflight aerodynamic and aerothermodynamic investigations (References 2, 3, and 4). The best postflight trajectory and atmospheric information is a necessary input for such investigations as the Aerodynamic Coefficient Measurement Experiment (ACME). Development of the best available atmosphere based on models as well as meteorological measurements is discussed in Reference 5. This report discusses the generation of the required trajectory information using the methods discussed by Compton, et al (Ref. 1,6). The process is functionally presented as Appendix A of this report in terms of a software overview and the required pre-processing of both the observational and dynamic data.

AMA, Inc., under NAS1-16087, is responsible for this postflight trajectory reconstruction, as well as generation of the final product for use by the user community. The reconstructed trajectory, based on onboard measurements of the spacecraft dynamics and ground based radar tracking, is necessarily an inertial product. To satisfy the total requirements of the aerodynamic and aerothermodynamic researchers, the final product (Ref. 7) merges the inertial reconstructed entry history with the best available atmospheric data. This product includes computation of the important atmospheric relative parameters as well as first order estimates of the flight derived total aerodynamic coefficients.

Section II presents a procedural discussion and includes an overview of the tracking coverages for STS-1. Mission specific input data are presented as Appendix B. Results are presented in Section III. Section IV summarizes these results and presents conclusions. Finally, a listing of the STS-1 BET parameters is presented as Appendix C.

II. Procedural Discussion

II. 1 Mission and Spacecraft Specific Data

There are numerous flight-dependent inputs required by the various elements of the entry reconstruction software, ENTREE (Ref. 8). These are given in Appendix B. Tracking station locations, acronyms, and refraction constants are given in Table B-1. These data were obtained from the mission software data base, Revision G.02 (Ref. 10). The required IMU attitude transformation matrices are given in Table B-2. These data were obtained from the Johnson Space Center and Ref. 9. Assumed a priori parameter uncertainties are given in Table B-3. Planet model parameters, Runway 23 locations, IMU locations with respect to the Shuttle center-of-gravity and Shuttle mass properties and aerodynamic reference values are presented in Table B-4.

II. 2 Initial Condition State Vector

Initial position and velocity estimates in Cartesian Mean of 1950 (M50) coordinates were provided by the Math Physics Branch at JSC. This state vector was the real-time Guam tracking pass solution and was valid at $17^h42^m30^s$ GMT on April 14, 1981. Since the time was very close to Guam Acquisition of Signal (AOS), it was chosen as the epoch ($63750^s.0$ from midnight, day of entry) for the STS-1 BET. The 6-element state was transformed to ENTREE input coordinates (spherical, Earth-fixed, Earth true equator of date) using standard formulas. Figures A-3a and A-3b in Appendix A define the ENTREE variables of interest. Initial attitude estimates (one per each IMU) were obtained using the attitude transformation matrices given in Appendix B, the 6-element state, and the interpolated platform to outer roll quaternions (at the state vector epoch) from the telemetry tape. The resulting start vector conditions are shown in Table II-1. Note the consistency in attitude estimates among the IMUs.

II. 3 Dynamic Data

Dynamic data, which consists of measured spacecraft angular rates and linear accelerations, are required for the BET generation. This requirement was satisfied by the IMU measurements. A performance evaluation among the three onboard IMUs (Ref. 11) showed very good consistency in their respective measurements. Based on this analysis and other comparisons of the IMU derived dynamic data, no "preferred" IMU could be determined. Since IMU2 had shown perhaps the best trajectory prediction capability (using initial condition estimates obtained from JSC), it was selected as the primary dynamic data source for BET development. However, as will be shown in Section III, very good trajectory solutions were also obtained using IMU1 and IMU3.

Essentially continuous measurements, i.e., no major data gaps, were obtained from each of the IMUs. IMU data covering the entire entry from the Guam AOS to approximately 17^s after vehicle stop were used. The only correction made to the "raw" data was a 0.007 sec adjustment to account for the spacecraft clock lagging the station clocks. This clock offset was provided by the JSC.

Figures II-1a through II-1c show the dynamics experienced by the spacecraft during the STS-1 entry flight. Plotted are the body axis components of the angular rates (Fig. II-1a), the linear accelerations (Fig. II-1b) and the angular accelerations (Fig. II-1c). These data were derived from the 1 Hz (nominally) IMU2 measurements using the methods described in Appendix A. The spacecraft rates and accelerations in the platform frame were rotated to the body axes and translated to the vehicle center-of-gravity. Angular accelerations were obtained by numerically differentiating the angular rate data.

II.4 Tracking Data

Radar tracking data from the Guam S-band station and eight (8) California C-band stations were used in reconstructing the STS-1 entry trajectory. Appendix B contains a list of the station acronyms, locations, and refraction constants. Appendix A describes the pre-processing required. In general, pre-processing was very straightforward and consisted primarily of reordering and units conversions. However, the Guam high speed S-band data obtained from GSFC required time-tag corrections. According to GSFC, this problem is unique to playback data and can be expected on subsequent flights. The time-tag corrections were made using low speed real time listings obtained from both GSFC and JSC. The adjustments made are given below in terms of GMT time on April 14, 1981 and also, in parentheses, the time from the BET reference epoch.

- Range, Doppler from 17:44:16.3 ($106^{s}.3$) to the end of the pass were time-shifted earlier by $0^{s}.1$
- X, Y-angles from 17:42:18 ($-12^{s}.0$) to 17:44:16.3 ($106^{s}.3$) were time-shifted earlier by $0^{s}.1$ and from 17:44:16.3 ($106^{s}.3$) to the end of the pass were time-shifted earlier by $0^{s}.2$

Fig. II-2 presents the complete STS-1 entry ground track (~ 40 min) overlaid on a geographical map segment. Also indicated are the tracking sites and approximate spacecraft altitudes at 500 sec increments along the track.

Tables II-2 and II-3 together with Figs. II-3a through II-3c illustrate the detailed tracking coverage. Table II-2 is a sequence of events for the trackers and shows acquisition of signal (AOS), loss of signal (LOS), and maximum elevation during the pass. Also, approximate observations are given at the specific times for information. In the case for the S-band station (GWMS), derived elevation data are shown. Table II-3 indicates the actual data arc processed for each tracker, subject to the processing constraints (principally elevation angle cutoff) used.

Figure II-3 presents the station coverage during each of the three main entry segments. The coverage for each station is shown by "rays" from the station to the ground track. Coverages indicated are the actual arcs processed (Table II-3). Also, for better illustration, only one station from the Vandenberg and Pt. Pillar complexes are shown. Coverage for the other stations in these complexes is similar.

The limited upper altitude coverage and the importance of the Guam pass are shown in Fig. II-3a. In time and altitude, the Guam pass covers approximately three(3) minutes and an altitude range from ~ 183 km to ~ 145 km. The C-band stations were not acquired until approximately 21 minutes after

Guam LOS at an altitude of ~ 55 km. (The first C-band measurement processed was at $1577^s.0$ corresponding to an altitude of ~ 50 km). Fig. II-3b indicated considerable overlapping C-band coverage for approximately six(6) minutes over the altitude range from ~ 50 km to ~ 23 km. Fig. II-3c shows that during the last 6 minutes of the entry, from h ~ 23 km to h ~ .06 km, only Edwards and Dryden coverage was available. Dryden tracking lasted until main gear touchdown, whereas Edwards coverage ended about $17.^s0$ earlier.

In summary, for a 40 minute entry, radar tracking data processed were: (1) approximately three(3) minutes of high altitude coverage (183 km to 145 km) from Guam; (2) approximately six(6) minutes of 8-station overlapping C-band coverage (50 km to 23 km); (3) approximately five(5) minutes of the dual station coverage from approach to landing (23 km to .06 km).

All tracking data were processed at a 2 second data rate. A five(5) degree elevation angle cutoff constraint was used. An exception to this was the Dryden and Edwards Range and Azimuth data to enable better coverage at touchdown. The assumed data accuracies were based on preflight specifications and the actual scatter in fit residuals during processing. Assumed S-band accuracies were 1.5 m for Range; 0.3 Hz (~ 20 mm/sec) for Doppler; 0.2 mrad for both X and Y-angles. Those for C-band were: 9m for Range; 0.2 mrad for both Azimuth and Elevation angles. S-band X-angles were not processed when Y-angle measurements exceeded 70 degrees because of known X-angle inaccuracies in this region. In addition, C-band angles were not processed when the spacecraft was near zenith over Edwards and Dryden. All radar measurements, except C-band Azimuth, were corrected for atmospheric refraction using the algorithm given in Ref. 12. The modulus of refraction at each station was the mean monthly value for April as shown on Table B-2. Atmospheric scale heights were obtained using the algorithms of Ref. 12. Tracking observations were also corrected for the light-time delay using extensions of the procedures described in Ref. 13.

II.5 Other Observations

In addition to the C-band and S-band tracking data, two types of pseudo data were processed during and post rollout on the dry lake bed. During rollout, the vehicle c.g. is known to be about 4.8768 m above ground level, within ± 1 m due to strut deflections resulting from various aerodynamic and wheel brake loads acting on the vehicle. Thus, pseudo altimeter observations of 4.8768 m were processed every second from $t = 2318^{s}.0$ (following nosewheel touchdown) through the end of the estimation run at $t = 2384^{s}.0$ (16 seconds following vehicle stop). The altimeter data were weighted to an assumed 1 m (1σ) accuracy. In addition, beginning at $t = 2370^{s}.0$, pseudo Doppler data consisting of 0.0 Hz (null) observations were processed 1 per second from 3 ficticious S-band stations located 609.6 m to the North, East, and below the vehicle stop position. The pseudo Doppler data were weighted to an assumed accuracy of 0.1 Hz (1σ). Inclusion of these pseudo measurements, which were based on known terminal flight conditions, rectified the BET trajectory to eliminate approximate errors of 0.4 mps and 17 m velocity and altitude, respectively, during and post rollout.

II.6 Solution Parameter Selection

During the reconstruction process, in addition to solving for the required spacecraft position, velocity and attitude, inclusion of both dynamic and observational parameters as solution parameters in the estimation was considered. Although many sets of these "extended solve-for parameters" were studied, the final BET included only six: 3 IMU gyro drifts, and 3 IMU accelerometer scale factors. Ideally, if the dynamic and observational instruments were perfect, the BET could be determined via a state-only solution, i.e., position, velocity and attitude at epoch. However, the total weighted root mean square (RMSW) of the tracking residuals for a state-only solution was 2.2. In other words, the overall fit was 2.2 times the assumed 1σ accuracy of the tracking measurements. Although the state only solution provided reasonable initial and terminal state vectors, additional parameters were included in the solution set to improve the fit to the tracking data and obtain a better entry trajectory.

Many factors influenced the final state vector size selection. First, it was believed that solving for observation related biases would not really improve the estimation accuracy though the data fit might appear to be better in the sense that the mean errors were reduced. It was felt that the best way to account for any potential measurement related error source was to process the data from all available stations, thus, in effect, averaging the errors, if any. Thus, the final BET was determined from the uncorrected tracking data.

Pre-mission simulations had shown that (1) center of gravity position errors many times larger than the uncertainty associated with the advertised c.g. location had a very small effect on the ensuing estimation accuracy, and (2) with the tracking data accuracies available, little if any c.g. location information could be extracted from the data arcs. Hence, center-of-gravity errors were not solved for.

Early studies were done with various combinations of eighteen(18) potential IMU error sources in ENTREE: accelerometer biases (3), accelerometer scale factors (3), gyro drift biases (3), and g-sensitive gyro drift biases (9). Note that since only body to actual platform attitude information is necessary to derive the dynamic data for ENTREE, any initial IMU misalignments resulting from the pre-deorbit star tracker alignment need not be modeled or solved for.

With the previously mentioned 18 instrument parameters included in the solution set, the RMSW was reduced to 1.02. However, removing the 9 g-sensitive terms hardly degraded the fit, i.e., the RMSW increased to 1.05. Also, the dependence on a priori was reduced when g-sensitive terms were eliminated. Furthermore, based on conversations with JSC flight controllers who indicated that a successful pre-deorbit accelerometer calibration had transpired, and based on IMU comparisons (ref. 11) which indicated accelerometer bias errors on the order of only 10 μg, the 3 accelerometer bias parameters were also removed from the solution set. This left the 3 accelerometer scale factor errors, and the 3 gyro drift bias errors in the extended solution set of the final BET.

Cartesian M50			ENTREE Coordinates		
X	-2370.97465	km	V_R	7.4108907	km/sec
Y	-6113.30502	km	γ_R	-1.1568500	deg
Z	+ 226.76197	km	ψ_R	47.213181	deg
$\dot{X}$	+5.645572676	km/sec	h_D	182.76046	km
$\dot{Y}$	-1.843230515	km/sec	φ_D	1.9311855	deg
$\dot{Z}$	+5.008001519	km/sec	λ	140.76250	deg

PARAMETER	UNITS	IMU#1	IMU#2	IMU#3	AVERAGE
Yaw, ψ	deg	+43.566965	+43.513063	+43.483912	+43.521313
Pitch, θ	deg	+34.268077	+34.263293	+34.241664	+34.257678
Roll, φ	deg	-9.0267089	-9.0373522	-9.0395799	-9.034547

TABLE II-1

Initial state and attitude estimates at epoch

Time*	Site	Event	Range (km)	Azimuth (deg)	Elevation (deg)	X-Angle (deg)	Y-Angle (deg)
0	GWMS	AOS	1341		1.7 +	-83.6	-70.5
155	GWMS	max elevation	671		11.2 +	71.9	-51.0
313	GWMS	LOS	1280		0.3 +	88.1	12.9
1522	VDBC	AOS	579	284.2	2.7	N/A	
1534	VDFC	AOS	549	286.0	3.1		
1535	SNIC	AOS	701	296.1	1.2		
1574	FRCC	AOS	640	280.9	1.7		
1577	VDSC	AOS	427	291.4	5.0		
1583	EAFC	AOS	610	281.4	1.9		
1632	PPTC	AOS	177	200.1	14.9		
1650	PPTC	max elevation	165	184.7	15.6		
1715	PTPC	AOS, max elevation	216	142.9	9.9		
1767	VDBC	max elevation	125	20.1	16.5		
1768	VDFC	max elevation	131	19.6	15.2		
1769	VDSC	max elevation	131	19.9	15.2		
1834	SNIC	max elevation	223	5.6	7.5		
1893	PPTC	LOS	427	127.1	1.8		
1910	PTPC	LOS	457	126.1	1.9		
2012	EAFC	max elevation	17	18.3	84.1		
2018	FRCC	max elevation	16	18.3	82.8		
2137	VDBC	LOS	274	82.8	1.0		
2149	VDFC	LOS	274	82.5	-2.2		
2156	VDSC	LOS	274	77.5	-1.1		
2162	SNIC	LOS	262	41.9	1.8		
2281	EAFC	LOS	12	87.8	-0.6		
2305	FRCC	LOS	7	90.7	-1.0		

*Time in seconds from epoch $104^d 17^h 42^m 30^s$

+Derived for information only

TABLE II-2

STS-1 C-band and S-band Sequence of Events

STATION Number	ACRONYM	Start Time (secs.)	Stop Time (secs.)
1	GWMS	50	250
2	PTPC	1714	1779
3	VDBC	1577	1950
4	VDSC	1577	1950
5	VDFC	1577	1950
7	SNIC	1693	1931
9	FRCC	1690	2305
10	EAFC	1688	2274
20	PPTC	1633	1780

TABLE II-3

Tracking Data Arcs Processed for STS-1

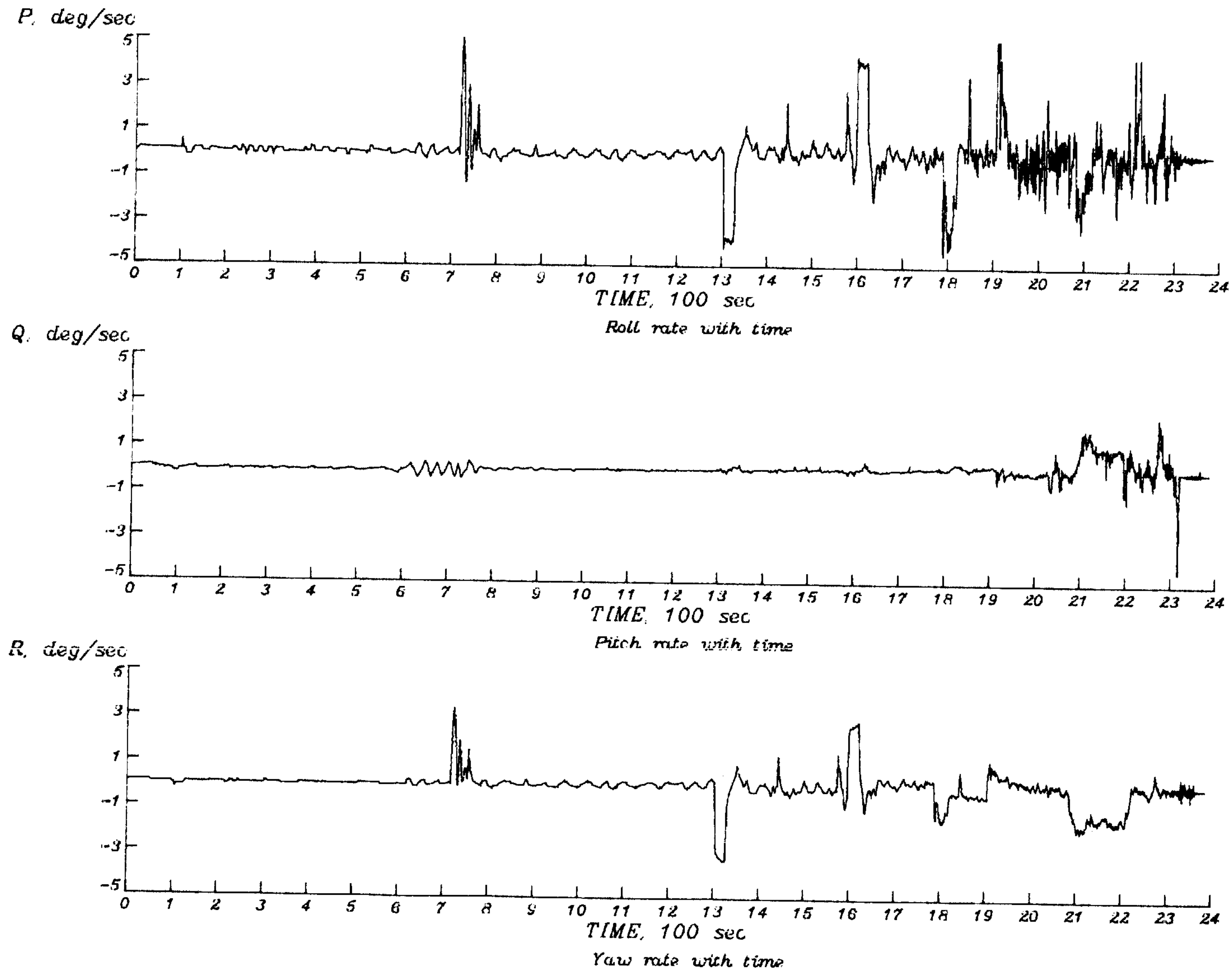


Figure II-1a. STS-1 body axis angular rate history derived from IMU2 measurements

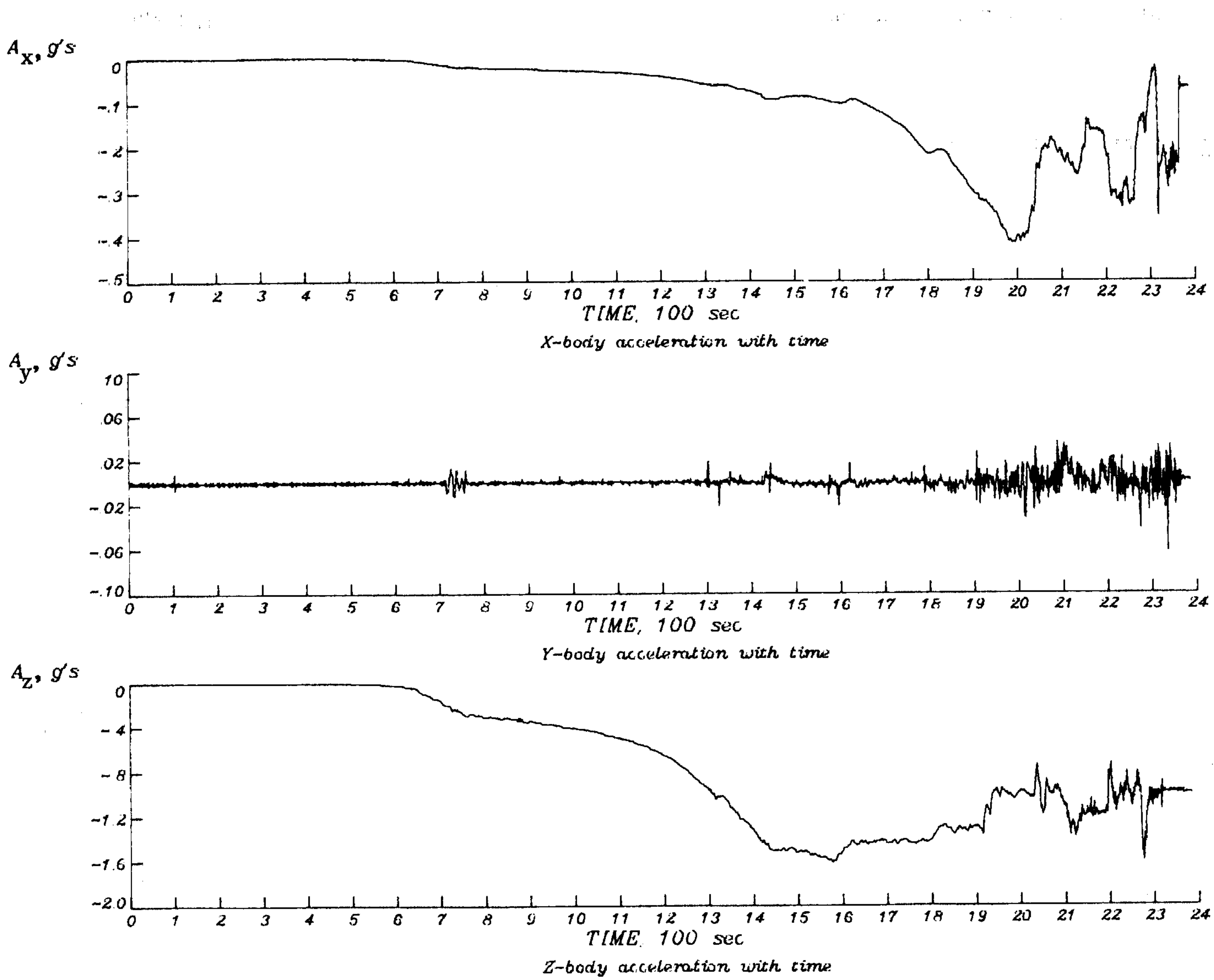


Figure II-1b. STS-1 body axis acceleration history derived from IMU2 measurements

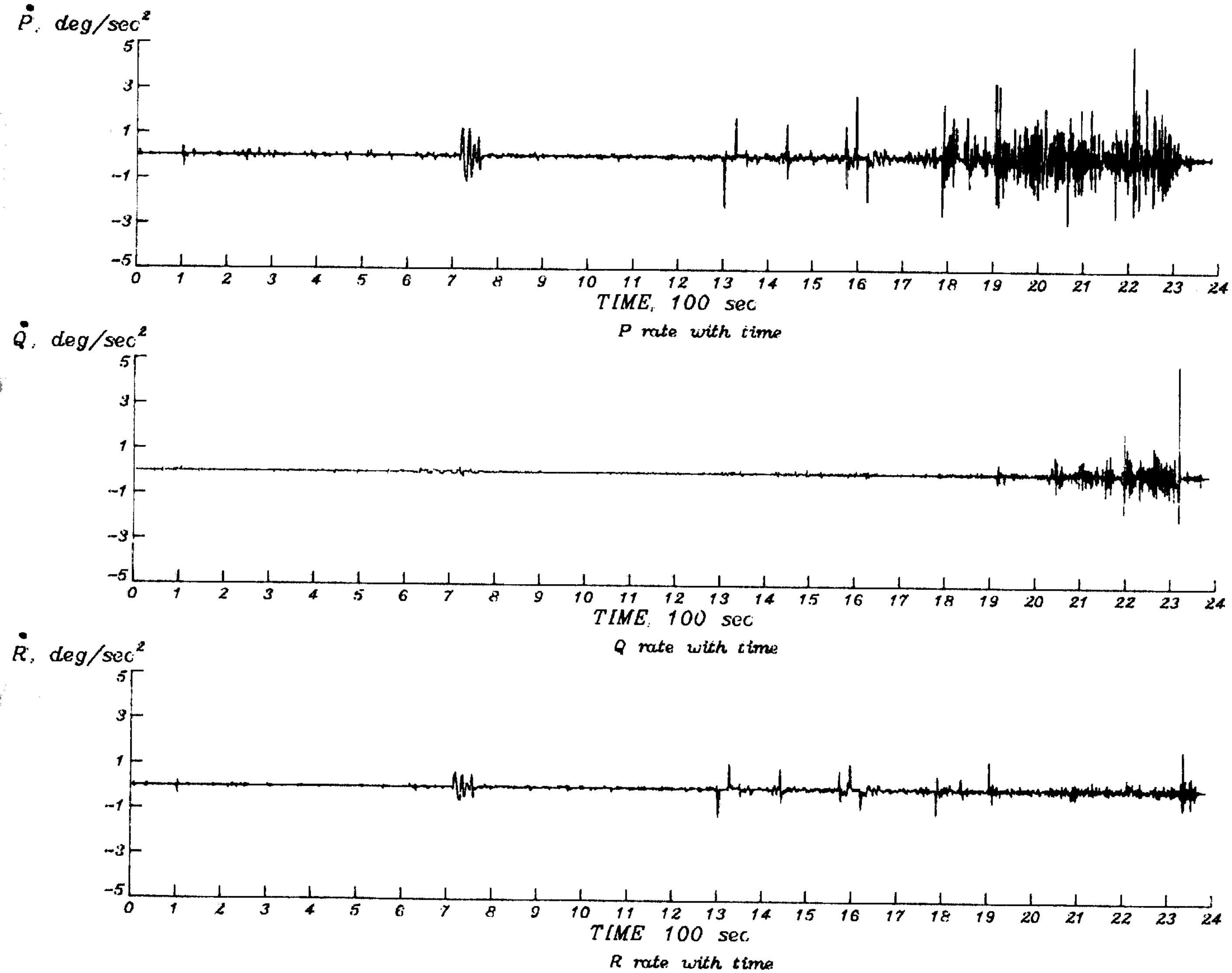


Figure II-1c. STS-1 body axis angular acceleration history derived from IMU2 measurements

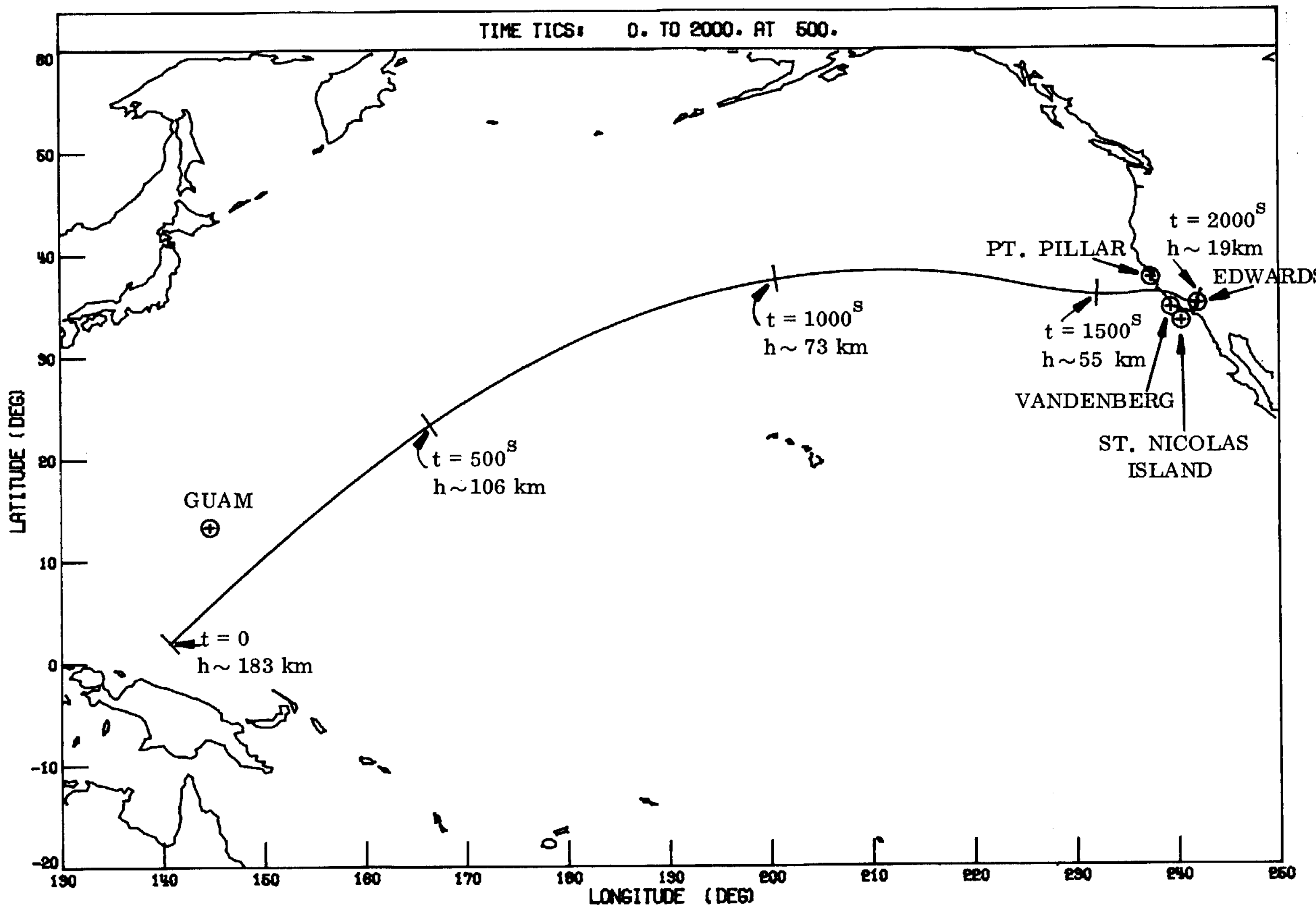
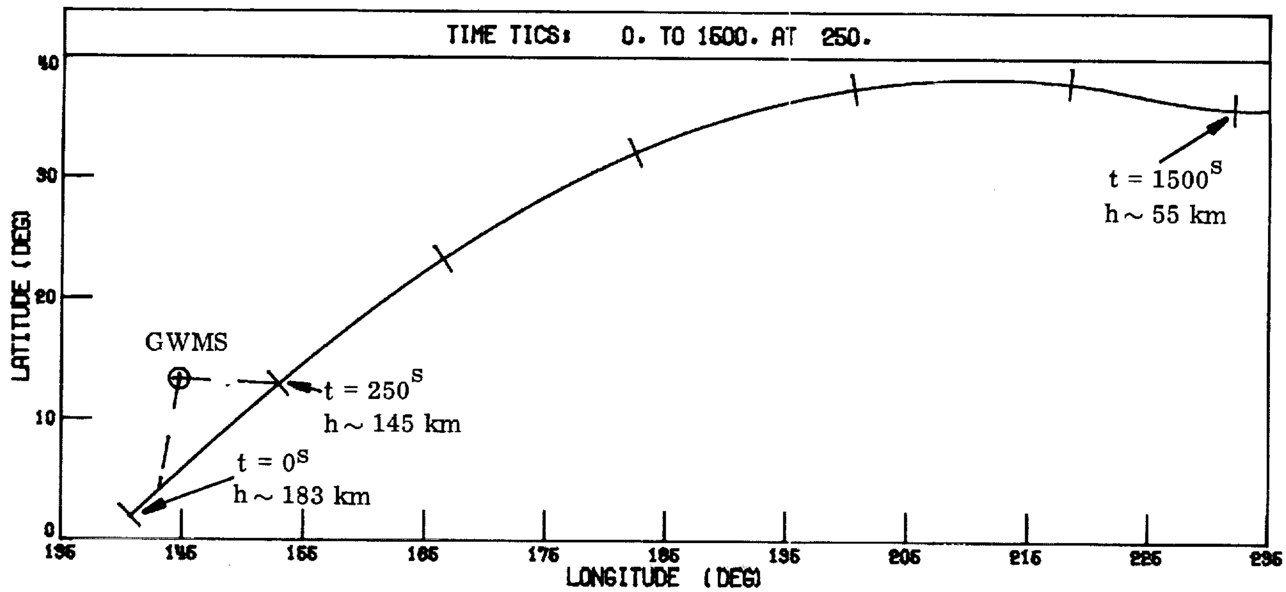
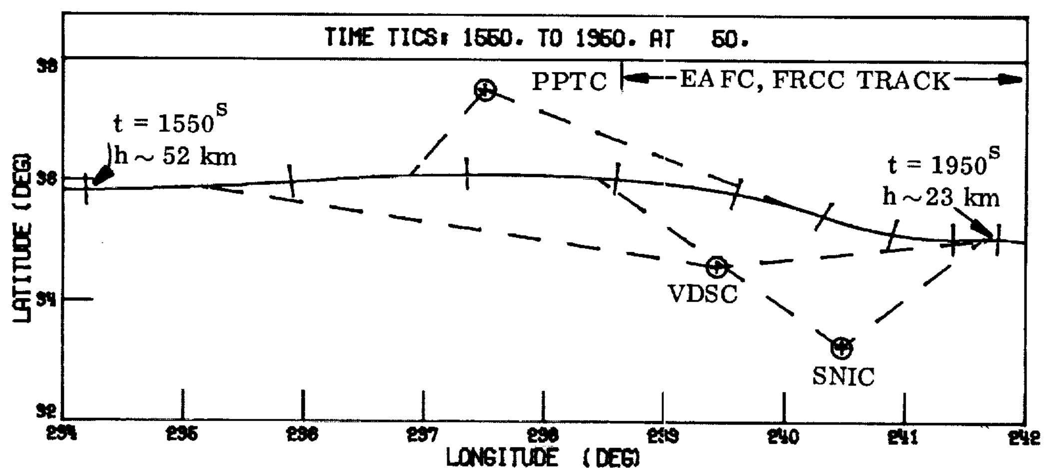


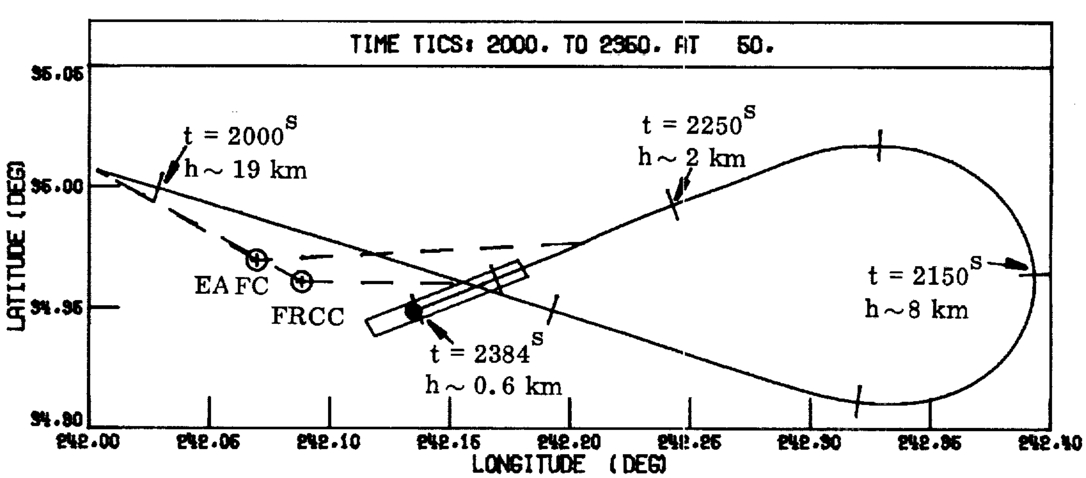
Figure II-2. STS-1 entry ground track



(a) Entry to C-Band Acquisition



(b) C-band Acquisition to Final Approach



(c) Final Approach and Landing

Figure II-3. Detailed tracking coverage geometry for STS-1

III. Results

Though most of the results presented are based on IMU2 processing, inertial trajectory estimates were obtained solving for state, attitude, and the 6 extended solution parameters previously described for all of the IMUs. Table III-1 shows the state vector solutions at the epoch time as well as an accuracy assessment. As can be seen, all 3 solutions compare favorably. The accuracy assessment was based on an ensemble of entry estimates and reflects a realistic judgment as to the accuracy with which the entry state is known. Formal statistics (1 σ) as generated within ENTREE are generally several orders of magnitude smaller which is felt to be somewhat unrealistic. The state solutions obtained represent an "information-only" solution--that is, the results were completely determined from the tracking data content. The relatively large diagonal a priori covariance matrix used for the batch filter had virtually no effect on the solution. The data fits based on each of the three IMUs were essentially the same. The (RMSW) fits were 1.14, 1.15, and 1.17 for IMUs 1, 2 and 3, respectively. This result shows that the data were fit to nearly 1σ in each case. This includes all the tracking data as well as the pseudo altimeter and pseudo Doppler data.

Plots of selected planet relative and inertial parameters from the BET vs. time are shown in Figures III-1a through III-1e, and vs. altitude in Figures III-2a through III-2e. These plots are based on the IMU2 estimate. The position and velocity are defined by: h, the geodetic altitude; Φ_D, the geodetic latitude; λ , the longitude; V_R , the planet relative velocity magnitude; γ_R, the planet relative flight path angle; and ψ_R , the velocity vector heading relative to true North. Attitude angles, σ_R , β_R , and α_R are the planet relative roll, sideslip, and angle of attack, respectively. The Euler angles, ψ , θ , and φ , are ordered yaw, pitch, and roll and define the attitude of the vehicle relative to a North-East-local vertical frame. The inertial velocity components relative to the same frame are given by u, v, and w, which are the North, East, and (positive) down components, respectively. Figures A-2 and A-3 in Appendix A provide a graphical depiction of the attitude angles, position, and velocity components described above.

The estimate of the Shuttle position and velocity during runway rollout is depicted in Figure III-3. Here the X-coordinate is measured along Runway 23 from the surveyed runway threshold, positive in the direction of the Shuttle motion. Y is perpendicular to X in the horizontal plane, positive right as seen by the landing Shuttle. The altitude components are depicted in the bottom plots of Figure III-3. Naturally, the actual terminal Shuttle velocities are zero post-stop, and the altitude of the c.g. above the runway during rollout and under static conditions is approximately 4.8768 m (which is shown as a dashed line starting from nosewheel touchdown at t = $2317^{s}.0$). Also shown as dashed lines starting at t = $2368^{s}.0$ are the surveyed coordinate stop points (corrected for main wheel/center-of-gravity displacement) as measured following the flight: X = 4588 m; Y = -4.4 m (F.O.E.D. Sketch No. 5120, Dryden Flight Research Center).

The estimated stop position components are given in Table III-2. The estimated position at the stop time of $2368^{s}.0$ was 15.2 in front of the surveyed stop point, 1.2 m to the right, and 0.4 m high. The velocity difference estimates were all less than 0.03 mps. The exceptional terminal altitude and velocity estimates are attributed to the processing of the pseudo altimeter and Doppler data (see Section II). The terminal state vector solutions for each of the 3 IMU-generated BETs are tabulated in Table III-2.

Figures III-4a through III-4j are the observation residual plots of all the measurement data processed in the generation of the BET associated with IMU2. Each page illustrates the data from a particular tracking station. The first plot shows the Guam S-band residuals. The next eight plots are the C-band residuals for PTPC, PPTC, VDBC, VDFC, VDSC, SNIC, FRCC, and EAFC, respectively. The radar types are noted thereon for each C-band station. The last figure contains residual plots for the three pseudo Doppler stations and altimeter observations. The left column on each figure shows the actual measurement residuals, O-C. The right column illustrates the weighted residuals, that is, the quotient of the actual residuals and the measurement weights. The computed means and standard deviations for each residual plot are annotated thereon. Roundoff results in some of these quantities being displayed as absolute zeros. A weighted residual statistics summary is presented in Table III-3.

Generally speaking, the overall data fit is excellent. As can be seen from the residual plots, some slight signature trends remain, probably due to unmodeled error sources associated with the trackers and the IMUs. Nevertheless, with the exception of the range measurements from the PTPC station at the Point Pillar complex, all station residual statistics show means and standard deviations of less than 2σ, with most having a better than 1 σ fit.

Table III-3 also indicates that the residual spread and data fit are generally independent of the dynamic data source. Most stations had either an all positive or all negative mean bias. Some were quite consistent in magnitude. Note too that the pseudo altimeter had similar means and sigmas independent of the IMU used to generate the BET, whereas the pseudo Doppler data residual statistics for each IMU bore little resemblance to one another.

Table III-4 lists the IMU systematic error solutions associated with each of the inertial platforms. IMU1 yielded the smallest estimated accelerometer scale factor solutions. IMU3 yielded the smallest gyro drift bias estimates but the largest accelerometer scale factor error solutions. In general, the scale factor solutions showed the most consistency as the extended solve-for parameter set was varied. Indeed, the formal uncertainties associated with the scale factor solutions with all IMU modeled errors considered were generally on the order of 50 - 100 ppm, indicative of a reasonably accurate estimate (the IMU specification accuracy as discussed in Appendix A is 100 ppm). On the other hand, the gyro drift bias solutions were very sensitive to nearly any change in the solution parameter set. Information only (i.e., no a priori uncertainties) were 20 to 50 times larger than the gyro drift specification accuracies. There was insufficient information in the tracking data to obtain reliably accurate estimates of these parameters.

Final atmosphere and atmosphere relative parameters are presented as Figs. III-5a through III-5i. The atmosphere utilized was the Langley Atmospheric Information Retrieval file (LAIRS, USE8 dated October, 1981).

Figs. III-5a through III-5d are plots of the temperature, pressure, density, and atmospheric wind profiles from this file. The winds are measured winds and are in general agreement with in situ determined winds as reported in Ref. 14. Also, additional measurements made at two California sites, Tehachapi and Wheeler Ridge, yielded similar wind profiles. The large planet relative side-slip angle excursions ($\sim$ 3 deg) shown in Figure III-1c are due almost entirely to neglecting these winds in the attitude computation.

Atmospheric relative velocity, flight path angle, and heading angle are shown in Fig. III-5e versus time. Air relative angle-of-attack and sideslip angle versus time are shown as Fig. III-5f. Here it is shown that the air relative side-slip is within $\pm$ 1.0 degree after inclusion of the atmospheric winds. This result is more reasonable and as anticipated based on STS-1 measured spacecraft rudder deflections and lateral accelerations. Dynamic pressure and Mach No. time histories are shown as Figs. III-5g. Flight derived lift and drag coefficients as well as the L/D ratio are shown as Fig. III-5h. Also shown thereon are the flight derived side force coefficient versus time. Finally, flight derived pitching moment (C_m), yawing moment (C_n), and rolling moment (C_ℓ) coefficients are presented in Fig. III-5i. These air relative parameters are utilized by ACME investigators for post-flight assessments of the aerodynamic performance by comparing with preflight aerodynamic data base values. It is observed that the derived aerodynamic parameters do not stabilize until $t \sim 700$ sec due to the low signal to noise ratio of the measured rates and accelerations in the low $\bar{q}$ environment.

Parameter	Units	IMU1	IMU2	IMU3	1 σ Accuracy Assessment
V_R	km/sec	7.41103	7.41108	7.41107	1.E-4
γ_R	deg	-1.1475205	-1.1555853	-1.1530949	4.E-3
ψ_R	deg	47.216922	47.218146	47.214843	.01
h	km	182.398	182.994	182.823	0.250
φ_D	deg	1.9323945	1.9339547	1.9333110	1.E-3
λ	deg	140.76175	140.76133	140.76203	2.E-3
σ_R	deg	-7.4015553	-7.4168490	-7.3679519	——
β_R	deg	-1.4950769	-1.5257547	-1.5227536	——
α_R	deg	35.548636	35.592728	35.585570	——
ψ	deg	43.481720	43.494063	43.523341	.08
θ	deg	34.255158	34.293573	34.291767	.02
φ	deg	-8.9983262	-9.0219117	-8.9621916	.05
u	km/sec	5.0327	5.0327	5.0330	——
v	km/sec	5.4381	5.4382	5.4379	——
w	km/sec	0.1484	0.1495	0.1491	——

TABLE III-1

STS-1 BET results at epoch using the tri-redundant IMUs

STATE VECTOR COMPONENT (RUNWAY COORDINATES)	IMU1	IMU2	IMU3	MEASURED END CONDITIONS
x (km)	4.6229	4.6037	4.6000	4.5884
y (km)	0.0037	-0.0032	-0.0064	-0.0044
h (km)	0.0051	0.0052	0.0051	0.0049
$\dot{x}$ (mps)	0.021	0.006	0.021	0.0
$\dot{y}$ (mps)	-0.024	-0.018	-0.021	0.0
$\dot{h}$ (mps)	-0.018	-0.027	-0.027	0.0

TABLE III-2

BET terminal flight conditions from the tri-redundant IMUs for STS-1

Station	Data Type	Weighted Mean, μ_W			Weighted Standard Deviation, σ_W		
		IMU1	IMU2	IMU3	IMU1	IMU2	IMU3
GWMS	Range	.06	-.04	.04	.61	.67	.63
	Doppler	.22	-.33	-.15	1.00	1.20	1.00
	X-Angle	-1.20	1.21	.50	.70	.70	.57
	Y-Angle	1.80	.95	.96	.63	.52	.52
PTPC	Range	-1.94	-1.10	-1.58	.49	.31	.44
	Azimuth	.62	.61	.68	.41	.41	.41
	Elevation	.80	.94	.82	.28	.30	.29
VDBC	Range	-1.01	-.67	-.54	.67	.94	.96
	Azimuth	-.22	-.25	-.33	.47	.47	.54
	Elevation	.26	.44	.32	.31	.31	.32
VDFC	Range	-1.37	-1.01	-.89	1.12	1.50	1.51
	Azimuth	-.06	-.09	-.17	.86	.88	.95
	Elevation	.23	.37	.25	.71	.78	.76
VDSC	Range	-.16	.17	.28	.65	1.00	1.03
	Azimuth	-.23	-.26	-.34	.85	.86	.95
	Elevation	-.14	0.0	-.13	.74	.82	.77
SNIC	Range	.57	.53	.50	.90	.99	.97
	Azimuth	-1.69	-1.68	-1.66	.73	.72	.74
	Elevation	-.07	-.01	-.03	.89	.90	.89
FRCC	Range	-.63	-.90	-1.04	1.17	1.13	1.12
	Azimuth	.15	.32	.27	.94	1.15	1.16
	Elevation	.76	.86	.80	.85	.86	.80
EAFC	Range	-.04	-.24	-.36	1.26	1.11	1.12
	Azimuth	-.05	.11	.08	1.08	1.22	1.23
	Elevation	.62	.75	.77	1.04	1.05	1.19
PPTC	Range	-3.05	-2.16	-2.51	.63	.51	.56
	Azimuth	.04	.07	.27	.27	.32	.38
	Elevation	-.70	-.52	-.79	.53	.53	.46
Pseudo	Altimeter	-.37	-.50	-.38	.14	.21	.21
Pseudo	Doppler#1	.03	-.07	.18	.58	1.25	.74
	Doppler#2	-.03	.56	.83	.95	1.09	1.31
	Doppler#3	1.01	2.15	1.58	.62	.90	.61

TABLE III-3

Weighted residual statistics summary for STS-1

	IMU1	IMU2	IMU3
X-gyro drift	-0.146 deg/hr	-0.092 deg/hr	+0.050 deg/hr
Y-gyro drift	-0.051 deg/hr	+0.110 deg/hr	-0.021 deg/hr
Z-gyro drift	-0.012 deg/hr	+0.096 deg/hr	+0.020 deg/hr
X-accelerometer scale factor	-8 ppm	56 ppm	193 ppm
Y-accelerometer scale factor	-16 ppm	190 ppm	162 ppm
Z-accelerometer scale factor	13 ppm	-64 ppm	-144 ppm

TABLE III-4

IMU parameter estimates for STS-1

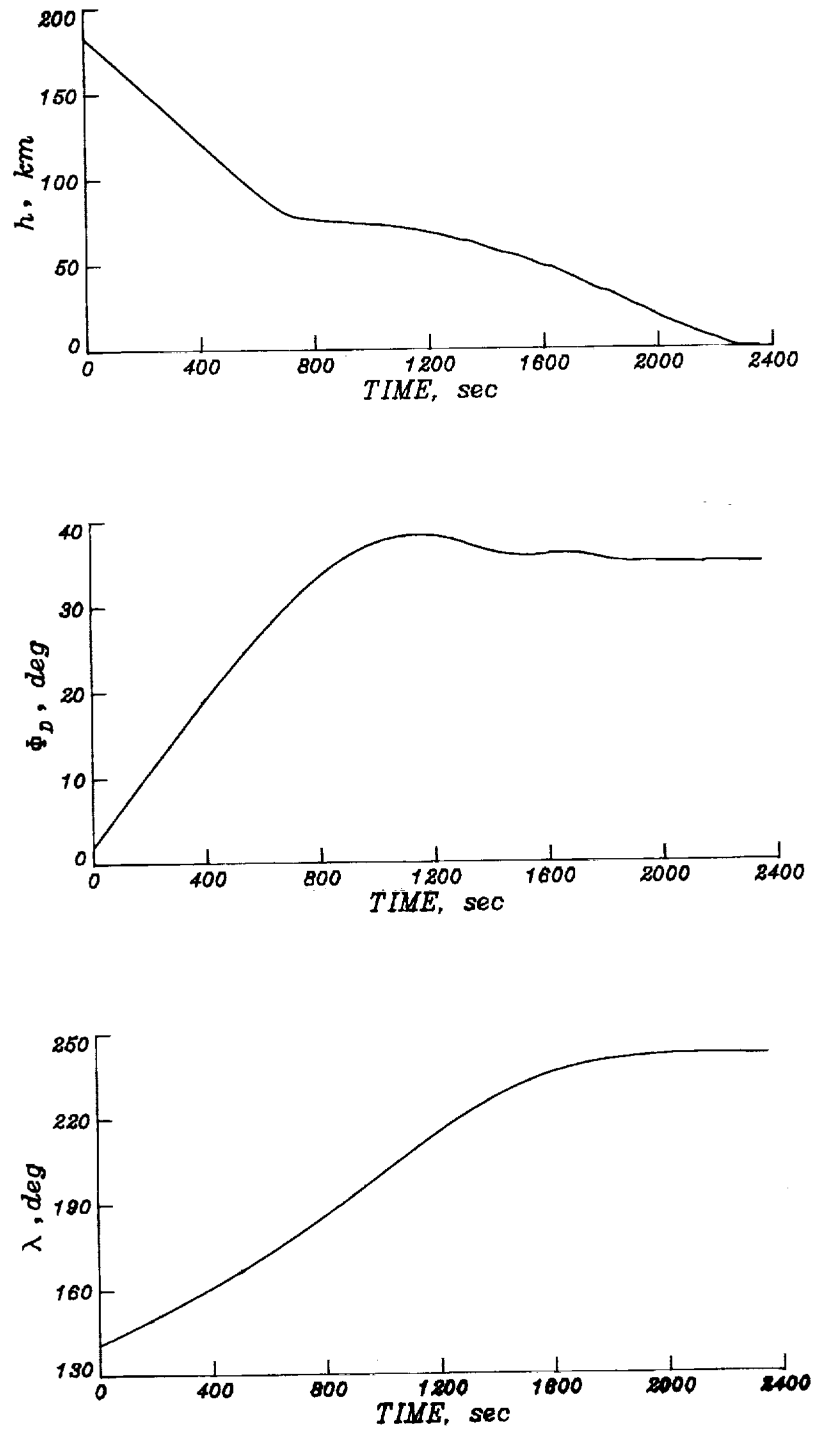


Figure III-1a. STS-1 BET altitude, latitude, and longitude versus time from epoch

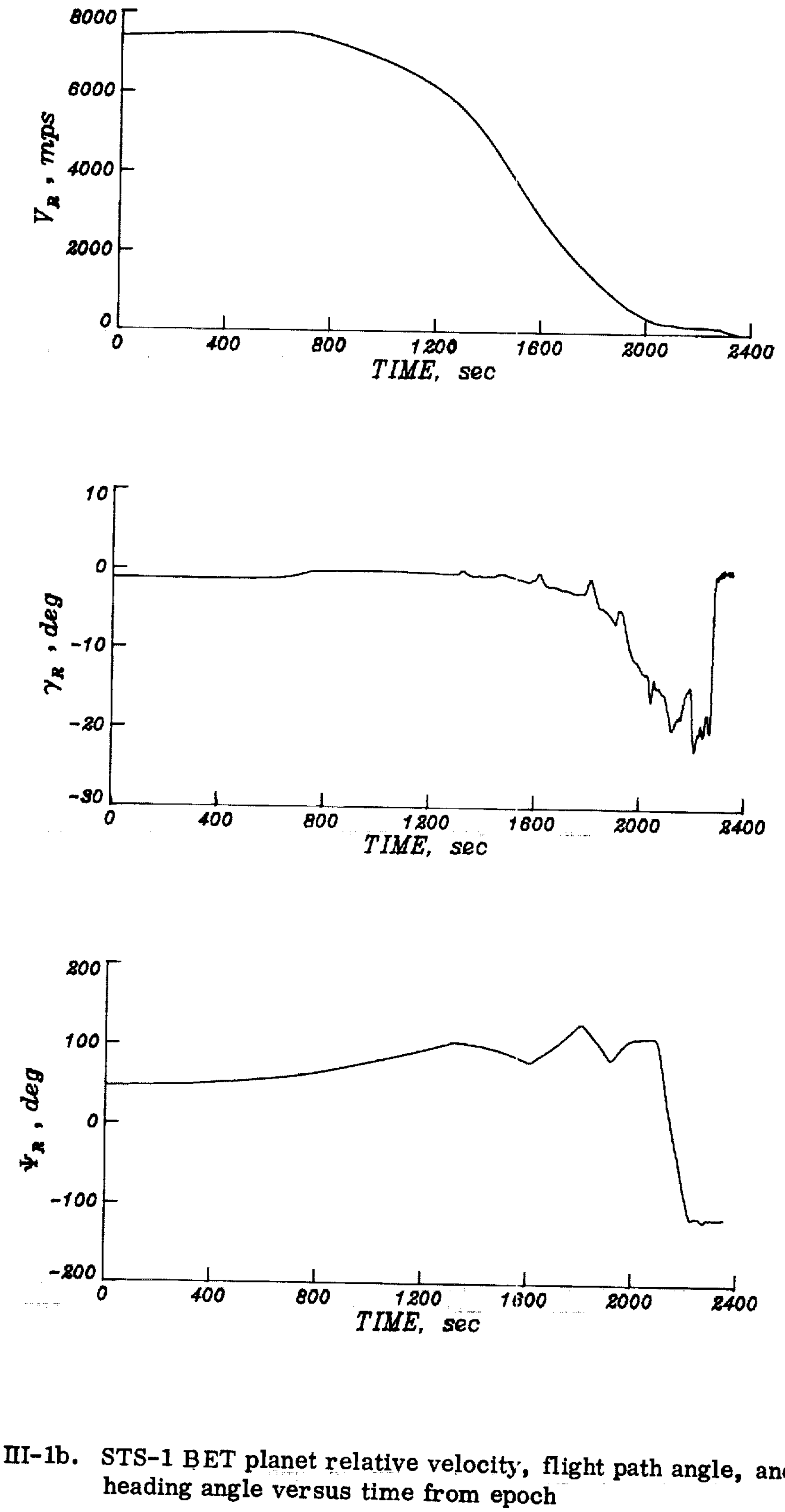


Figure III-1b. STS-1 BET planet relative velocity, flight path angle, and heading angle versus time from epoch

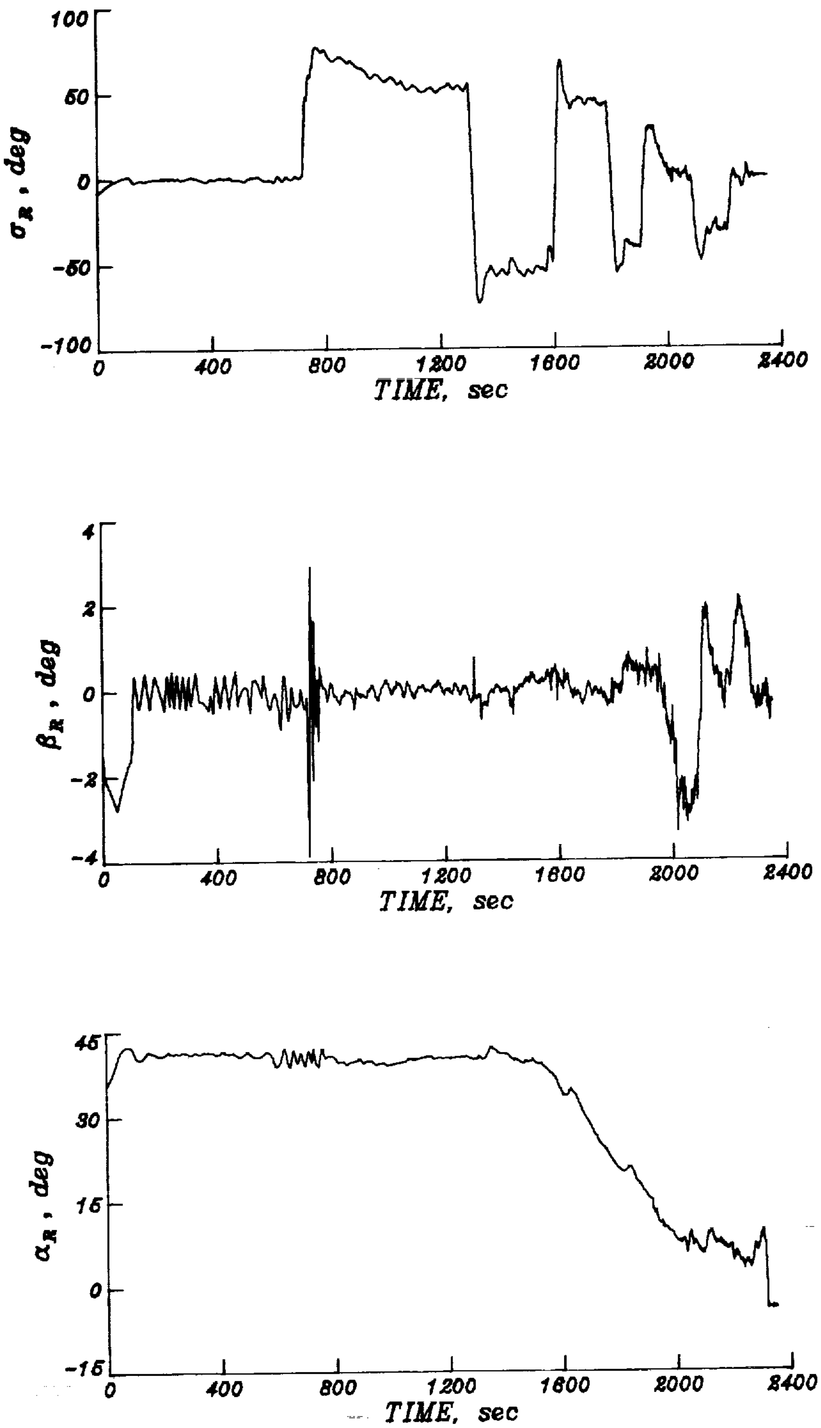


Figure III-1c. STS-1 BET attitude angles with respect to V_R versus time from epoch

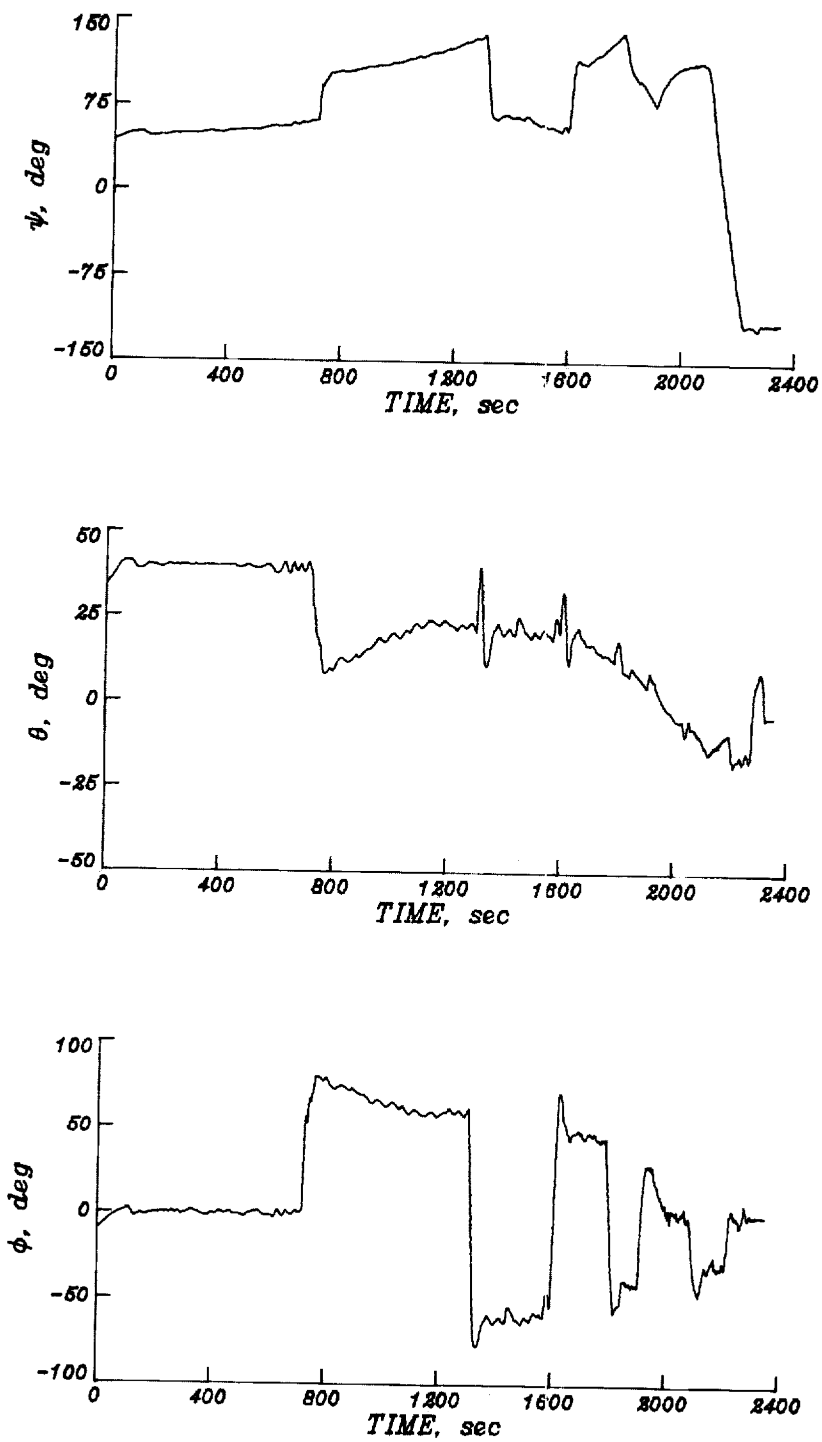


Figure III-1d. STS-1 BET Euler angles versus time from epoch

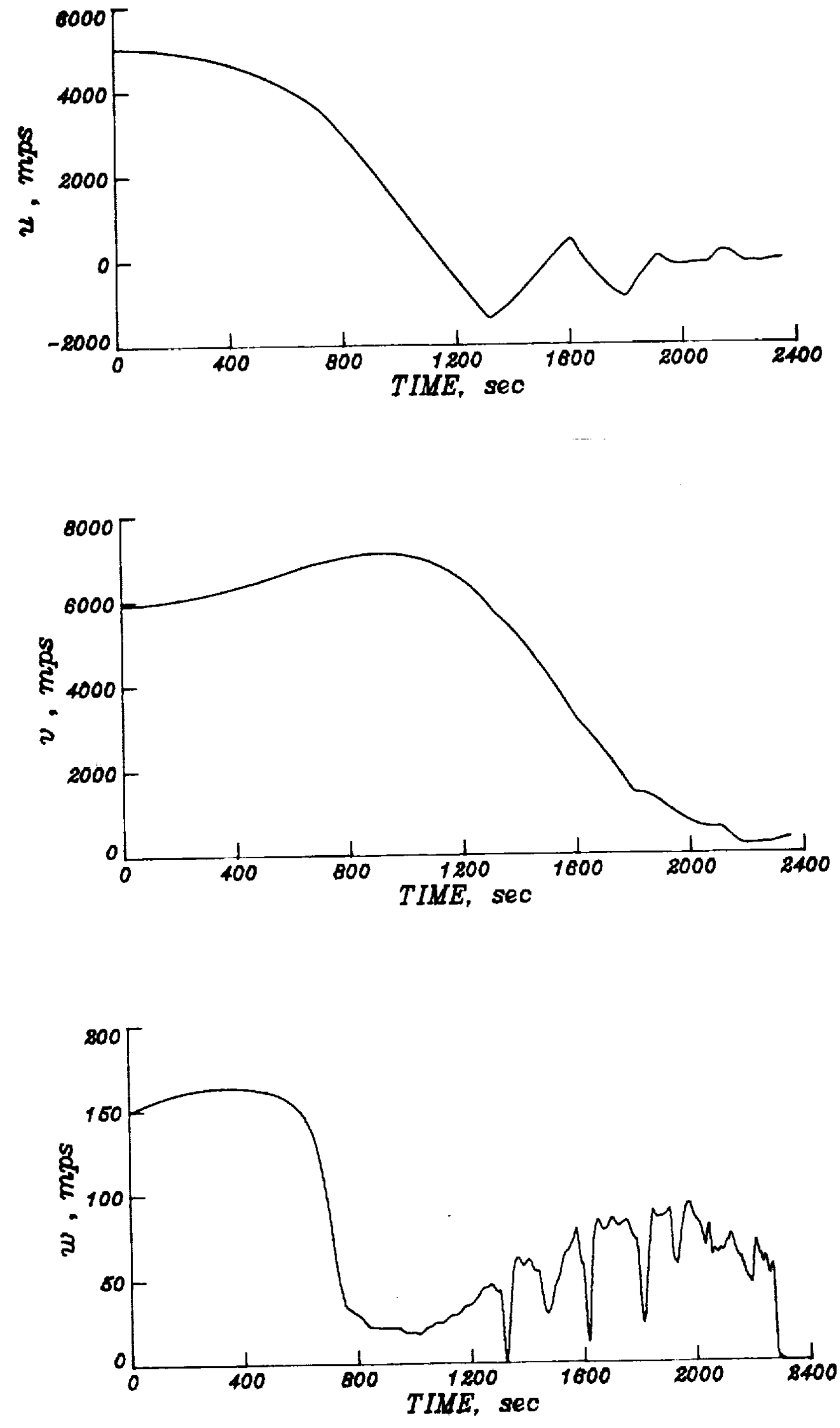


Figure III-1e. STS-1 BET inertial velocity components versus time from epoch

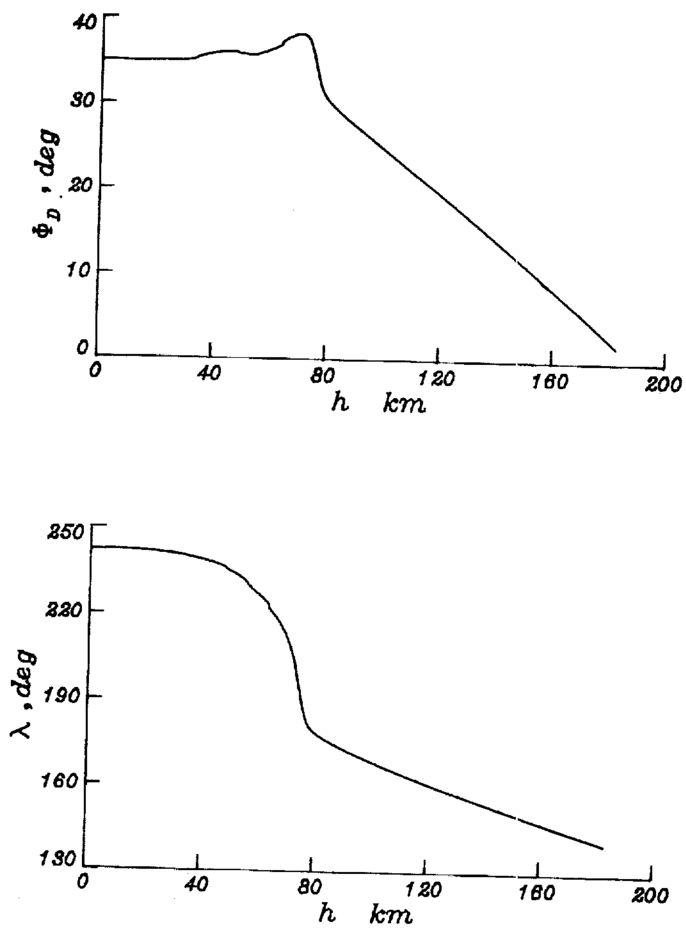


Figure III-2a. STS-1 BET latitude and longitude versus altitude

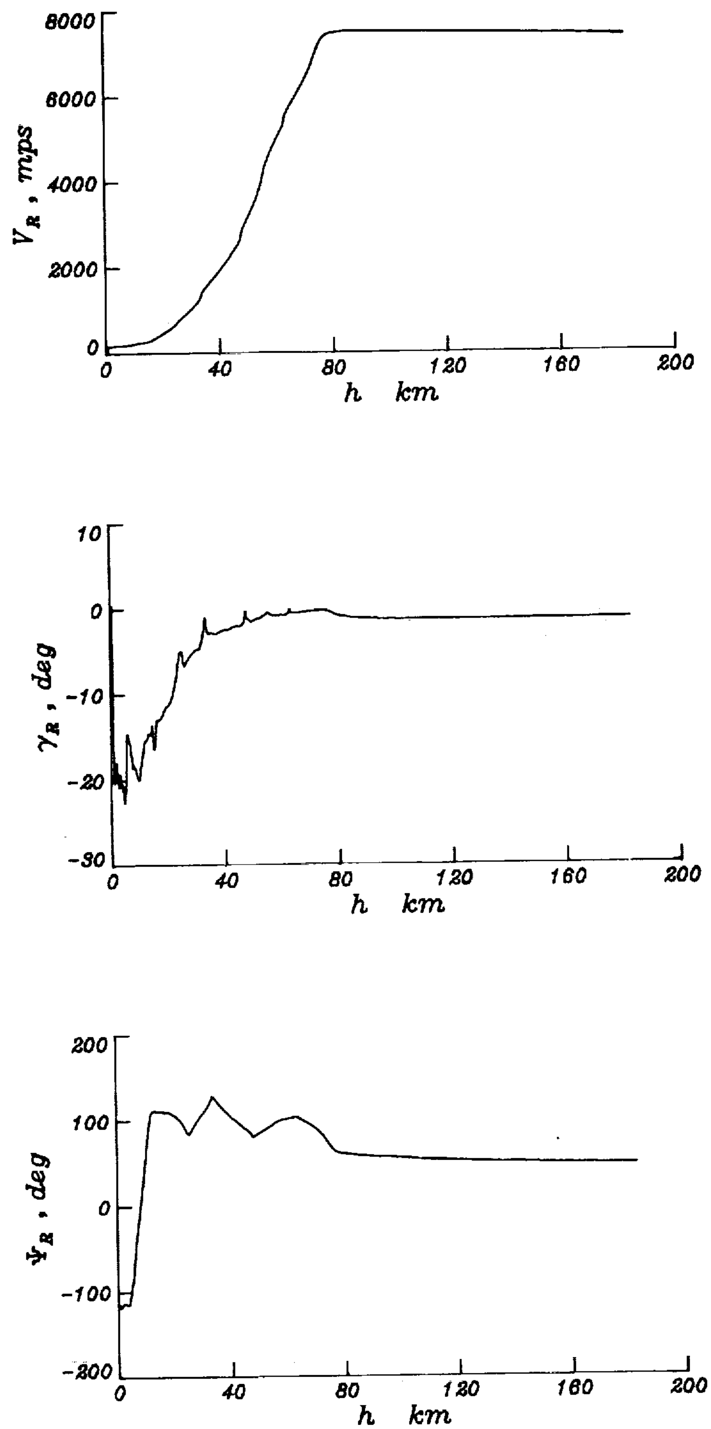


Figure III-2b. STS-1 BET planet relative velocity, flight path angle, and heading angle versus altitude

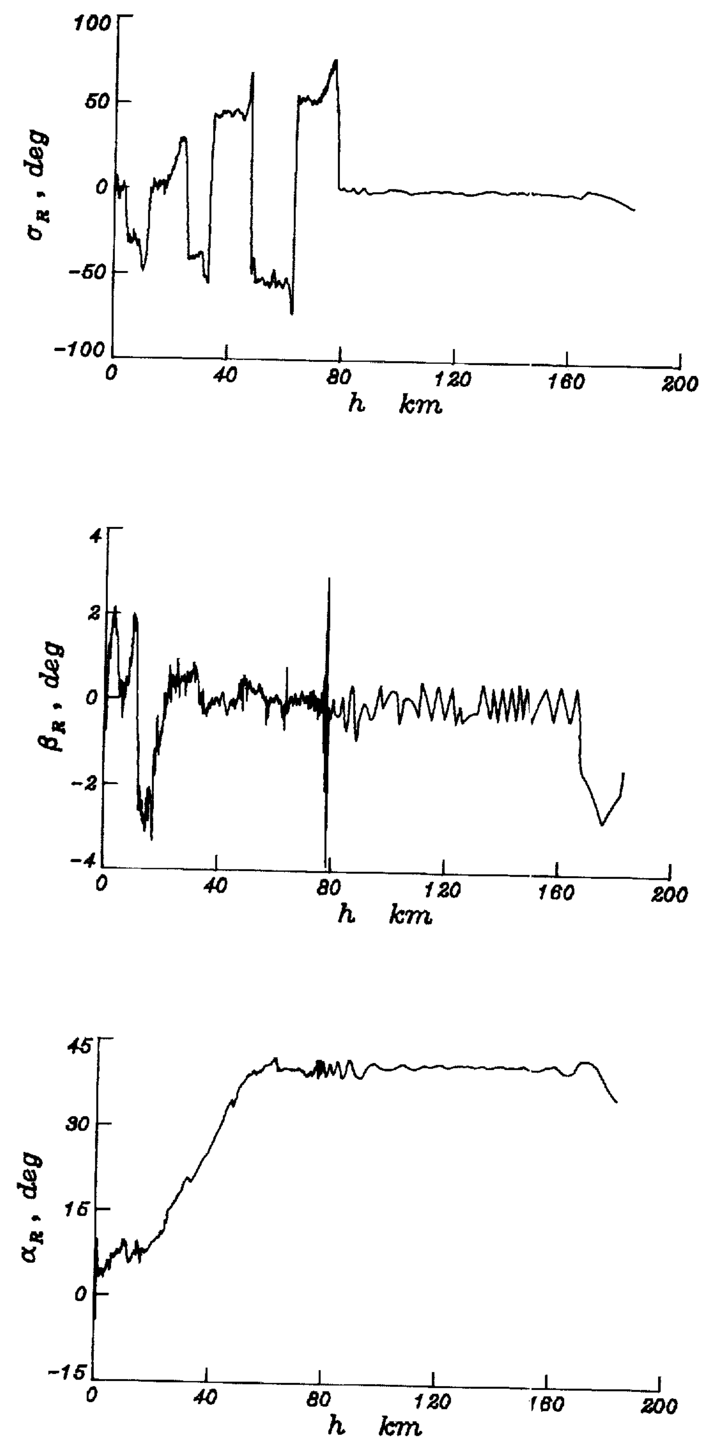


Figure III-2c. STS-1 BET attitude angles with respect to V_R versus altitude

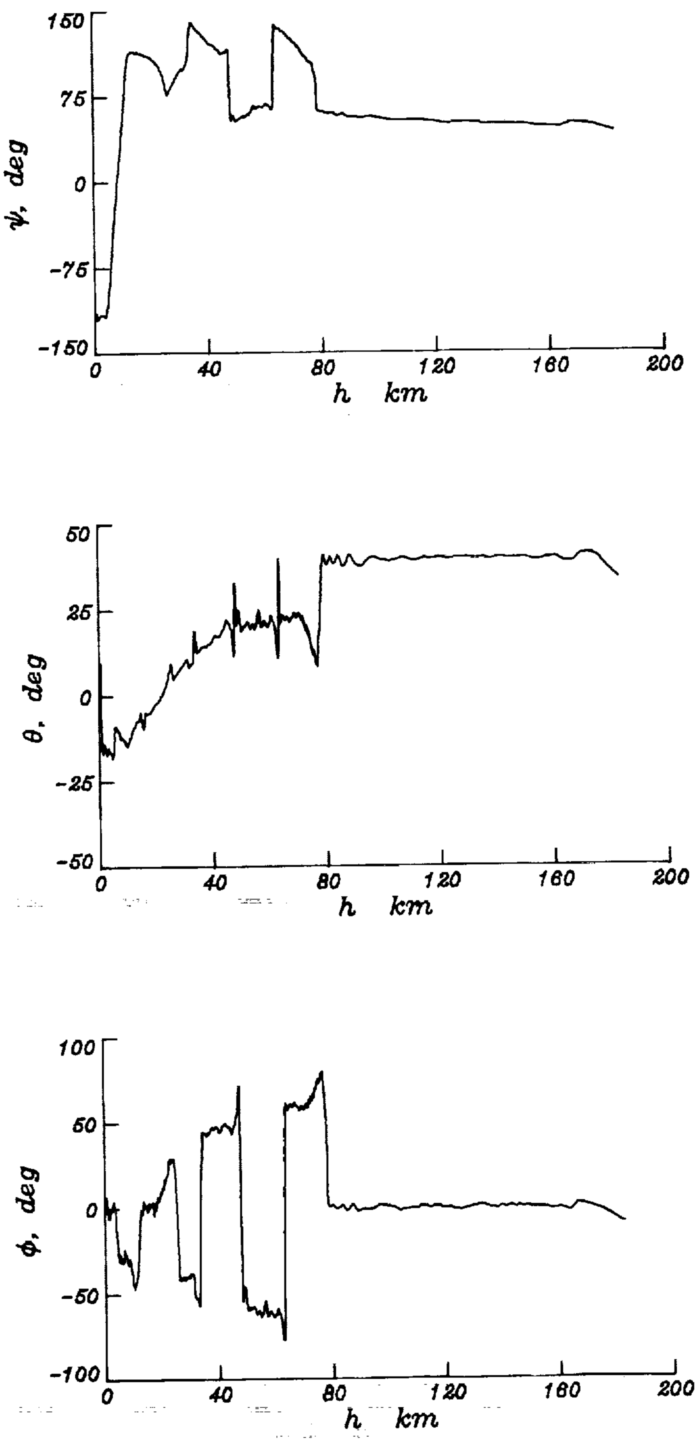


Figure III-2d. STS-1 BET Euler angles versus altitude

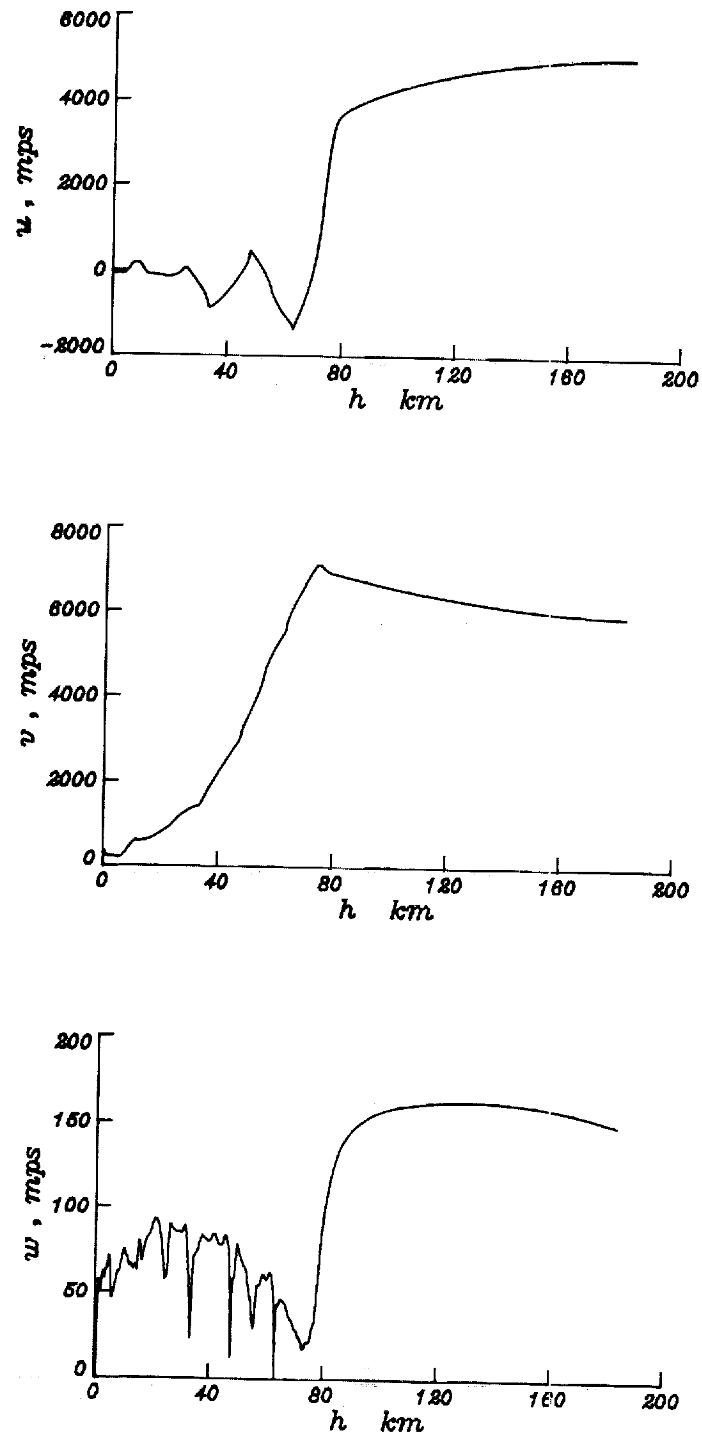


Figure III-2e. STS-1 BET inertial velocity components versus altitude

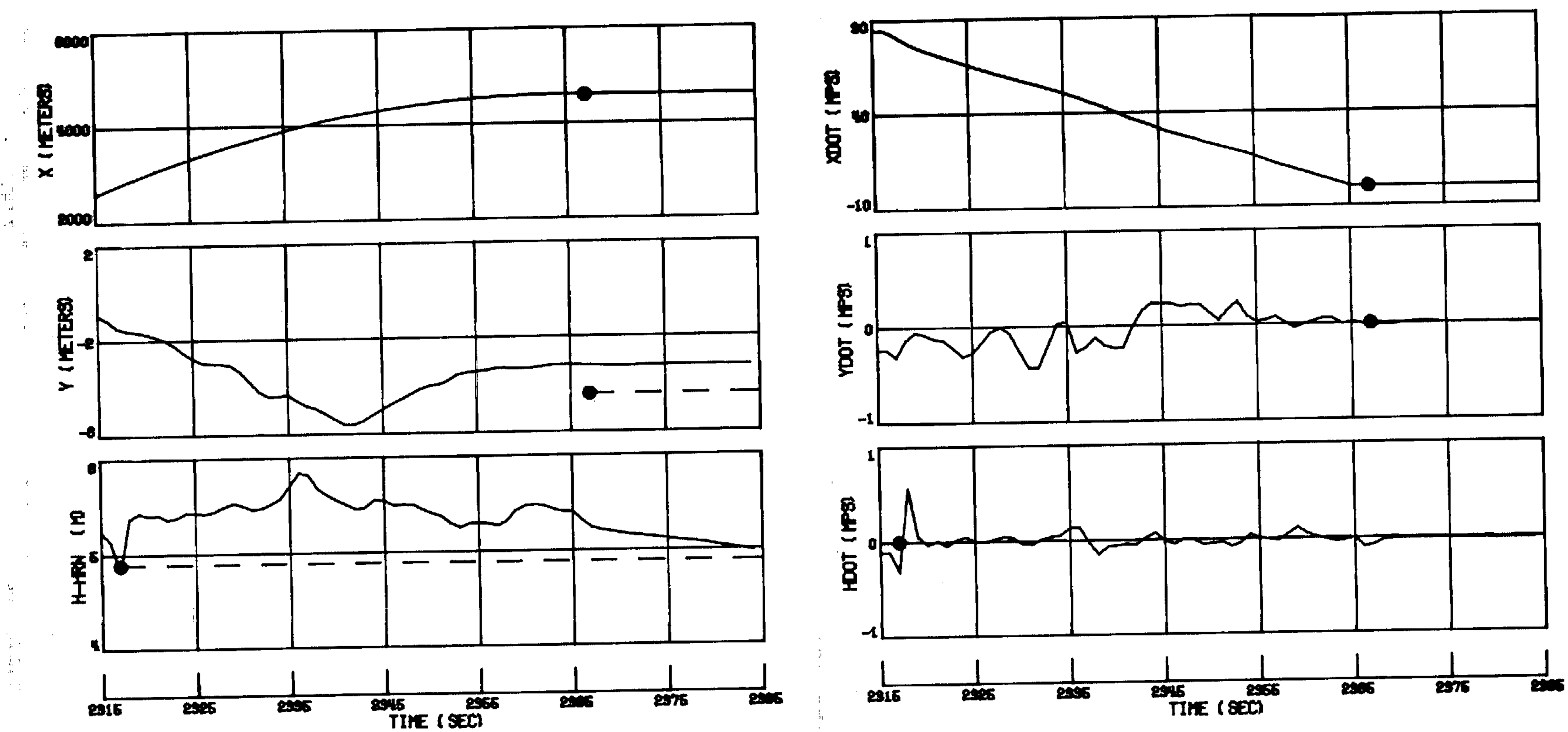


Figure III-3. STS-1 BET rollout position and velocity in runway coordinates

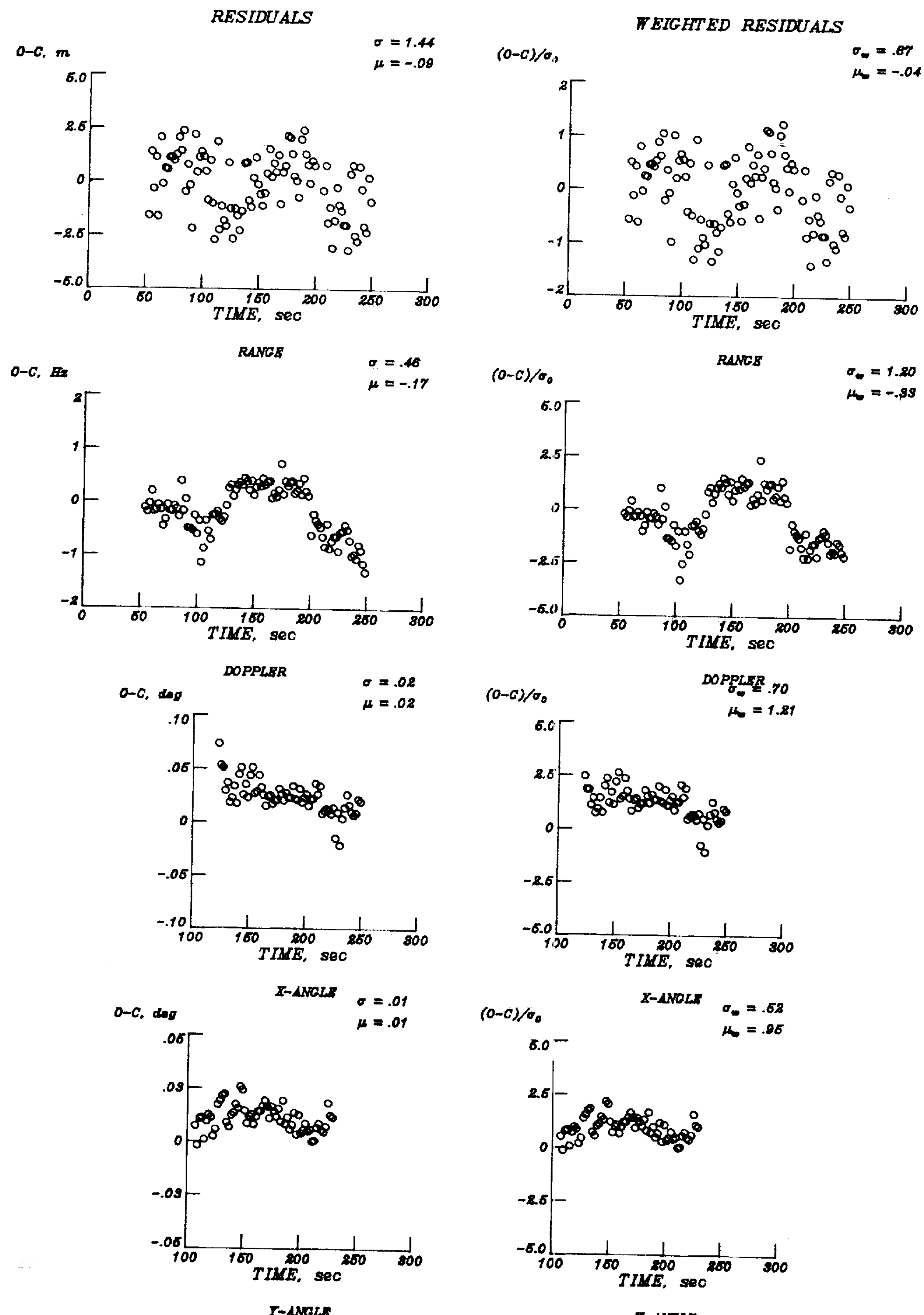


Figure III-4a. STS-1 final Guam S-band residuals versus time from epoch

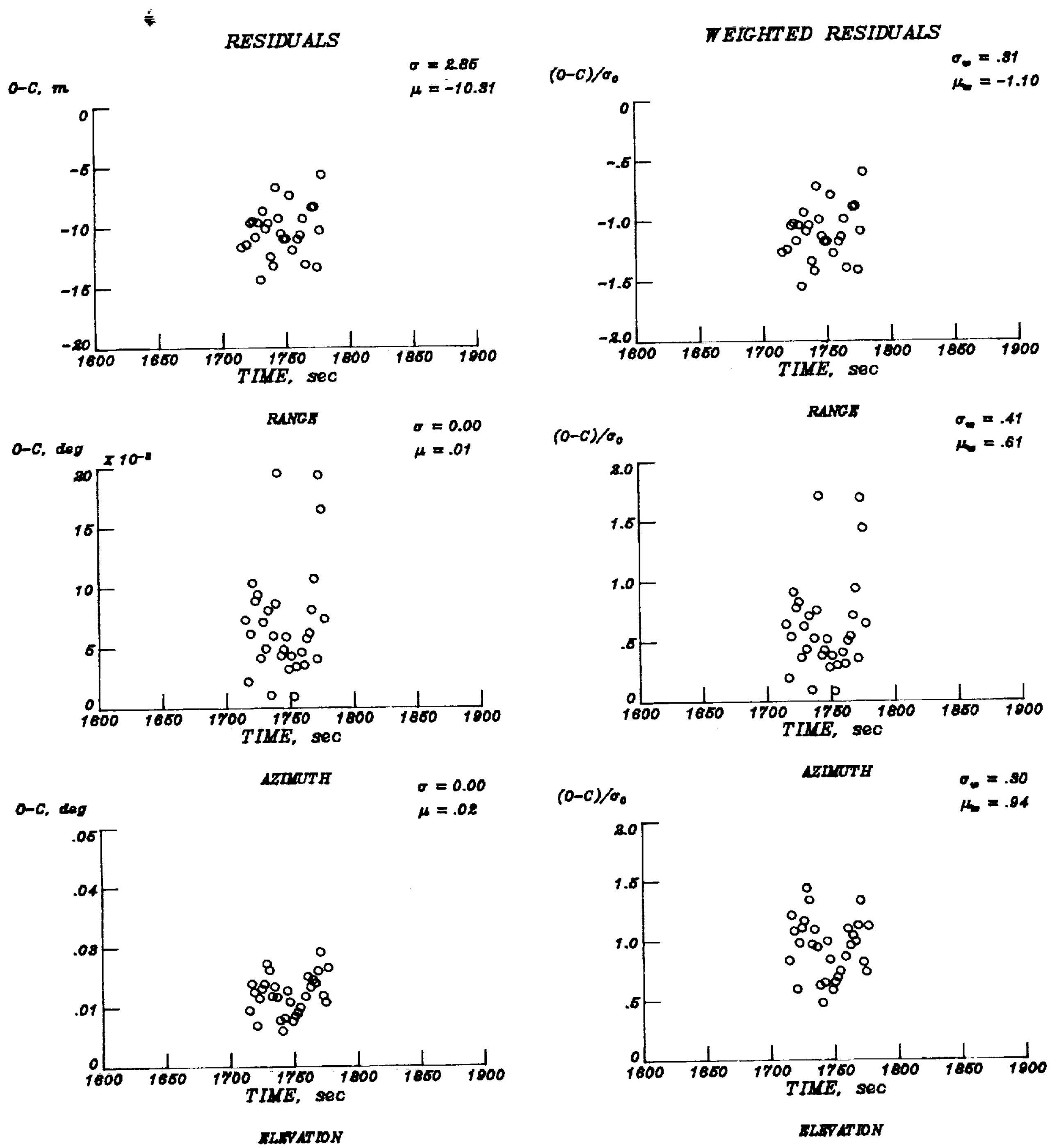


Figure III-4b. STS-1 final Pt. Pillar (PTPC/FPQ-6) residuals versus time from epoch

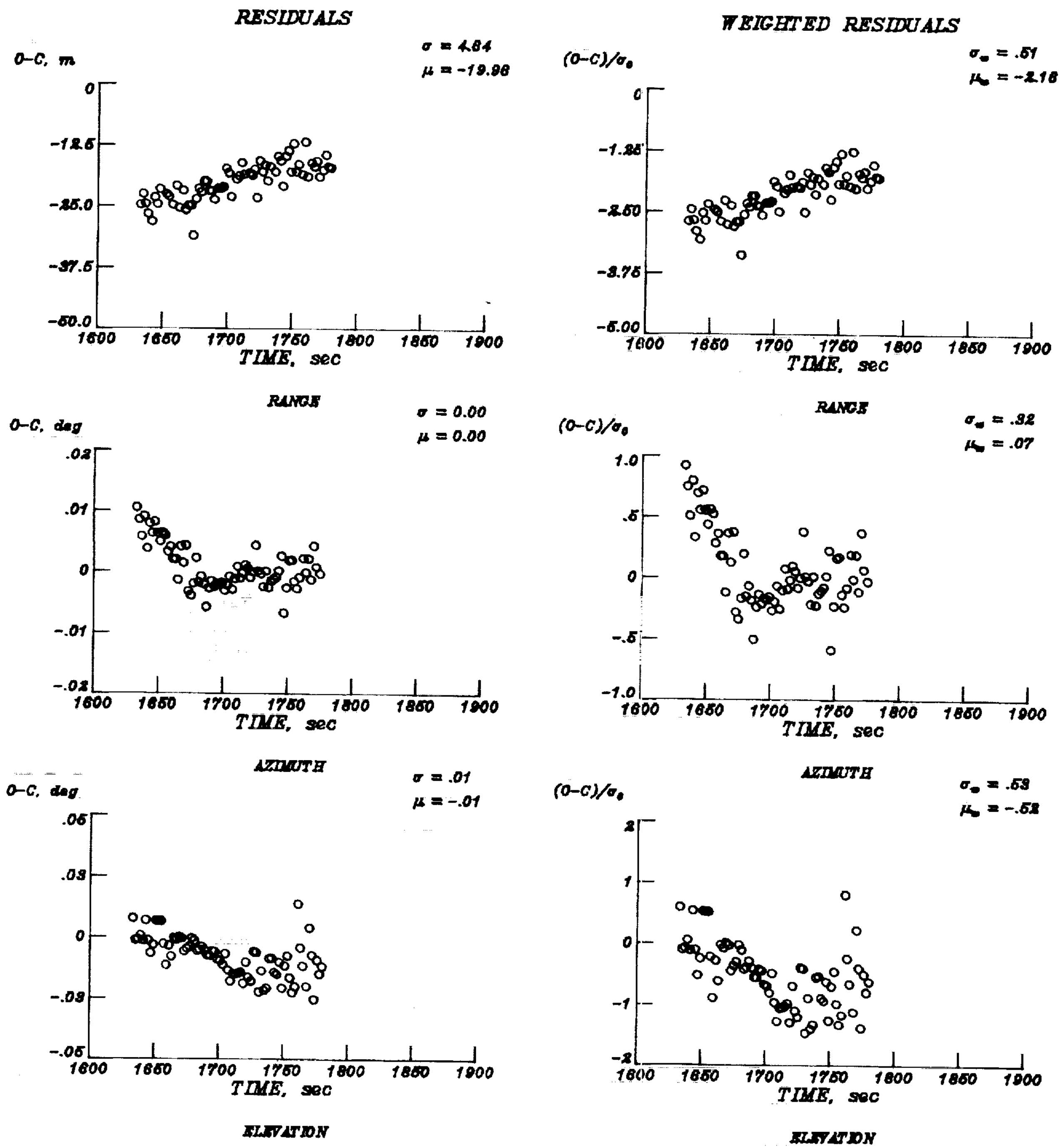


Figure III-4c. STS-1 final Pt. Pillar (PPTC/FPS-16) residuals versus time from epoch

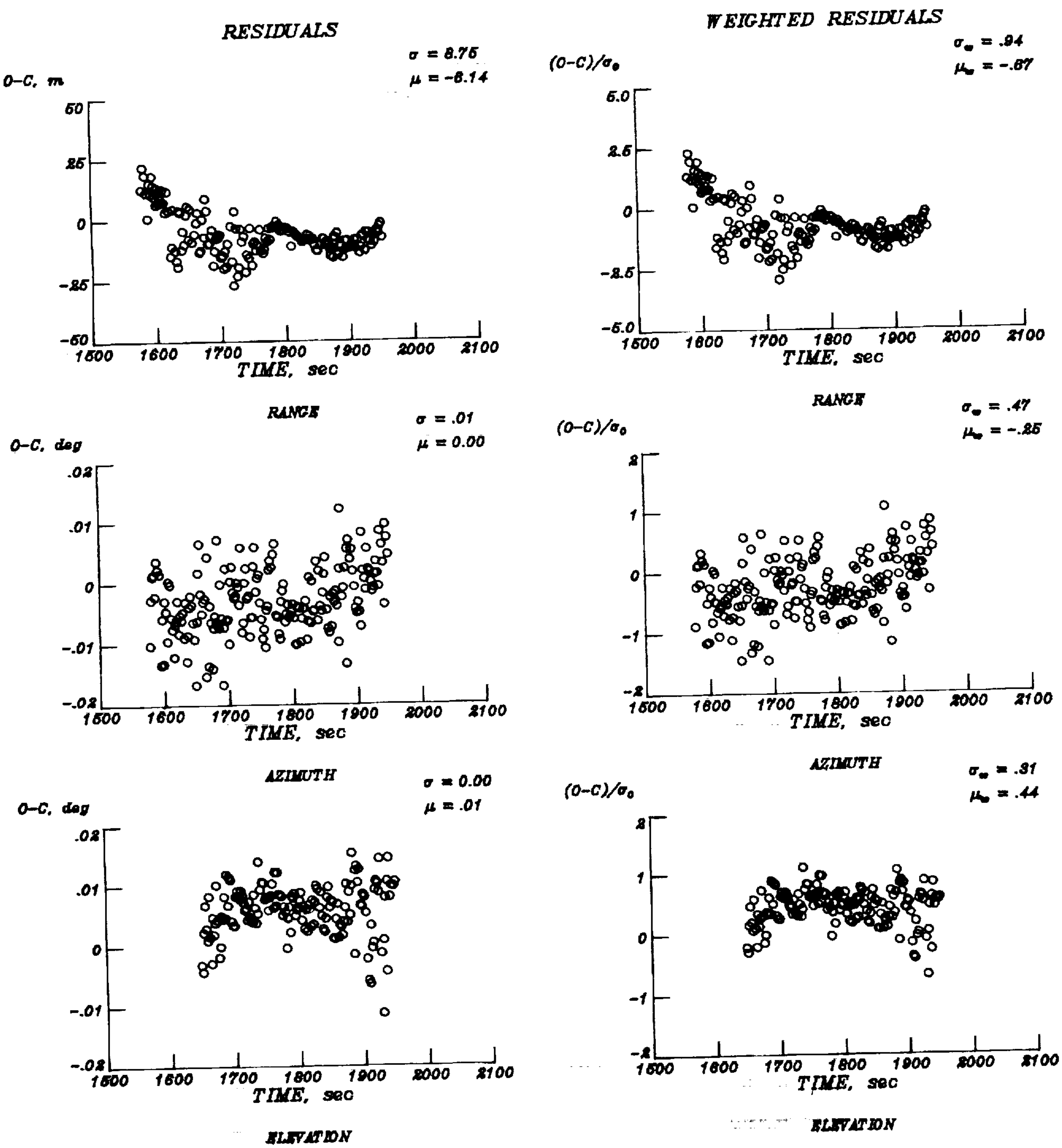


Figure III-4d. STS-1 final Vandenberg (VDBC/TPQ-18) residuals versus time from epoch

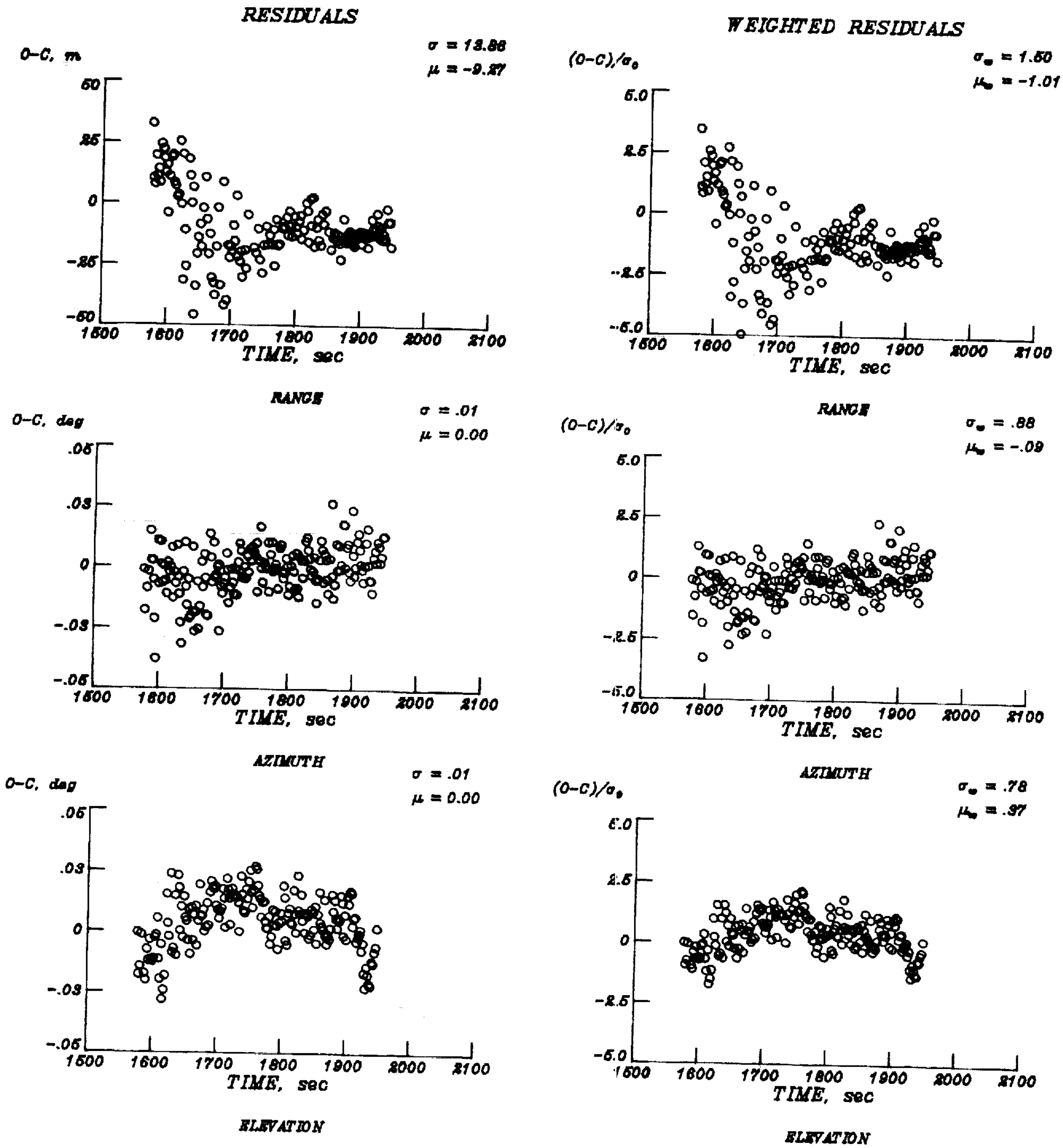


Figure III-4e. STS-1 final Vandenberg (VDFC/FPS-16) residuals versus time from epoch

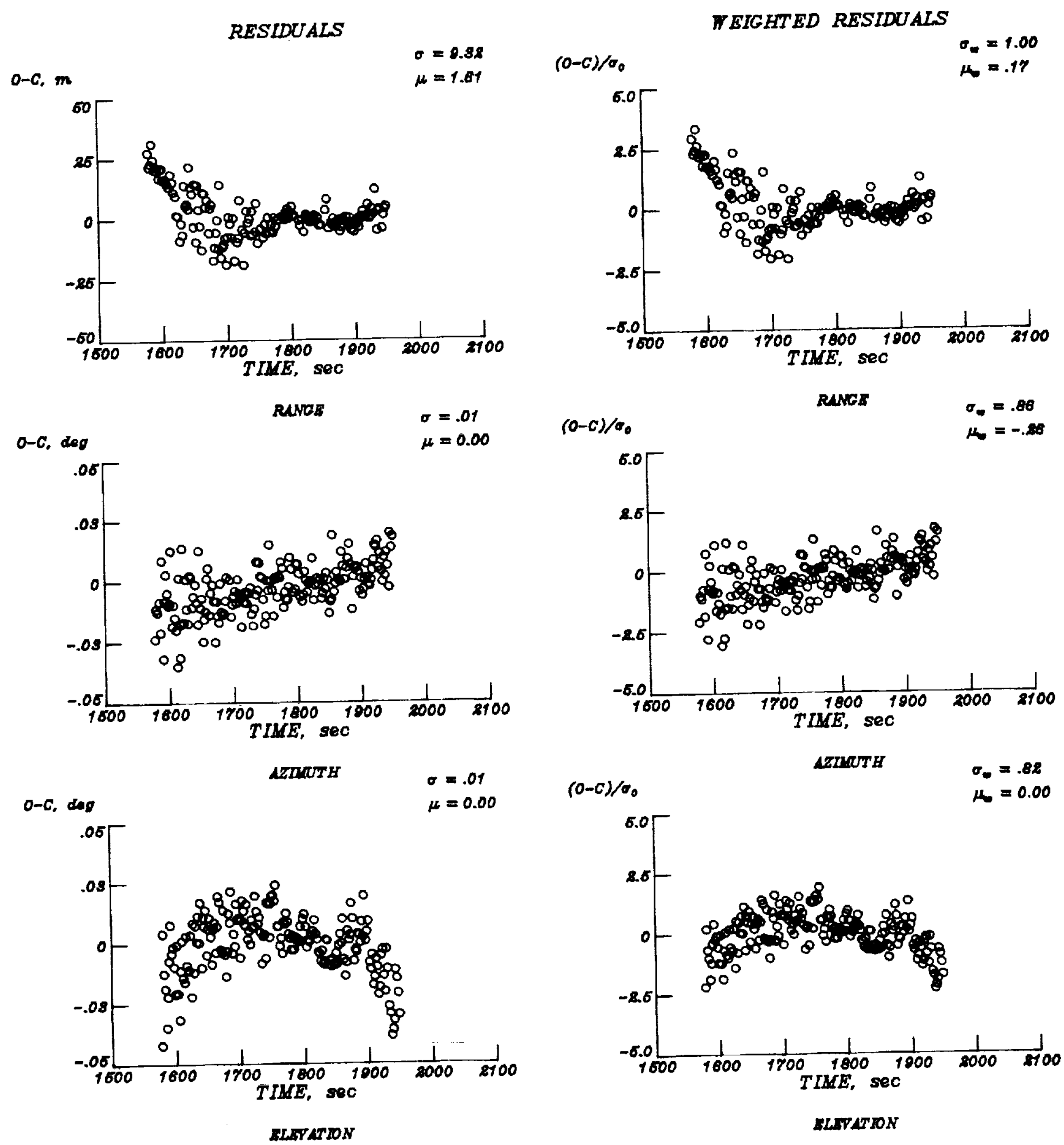


Figure III-4f. STS-1 final Vandenberg (VDSC/FPS-16) residuals versus time from epoch

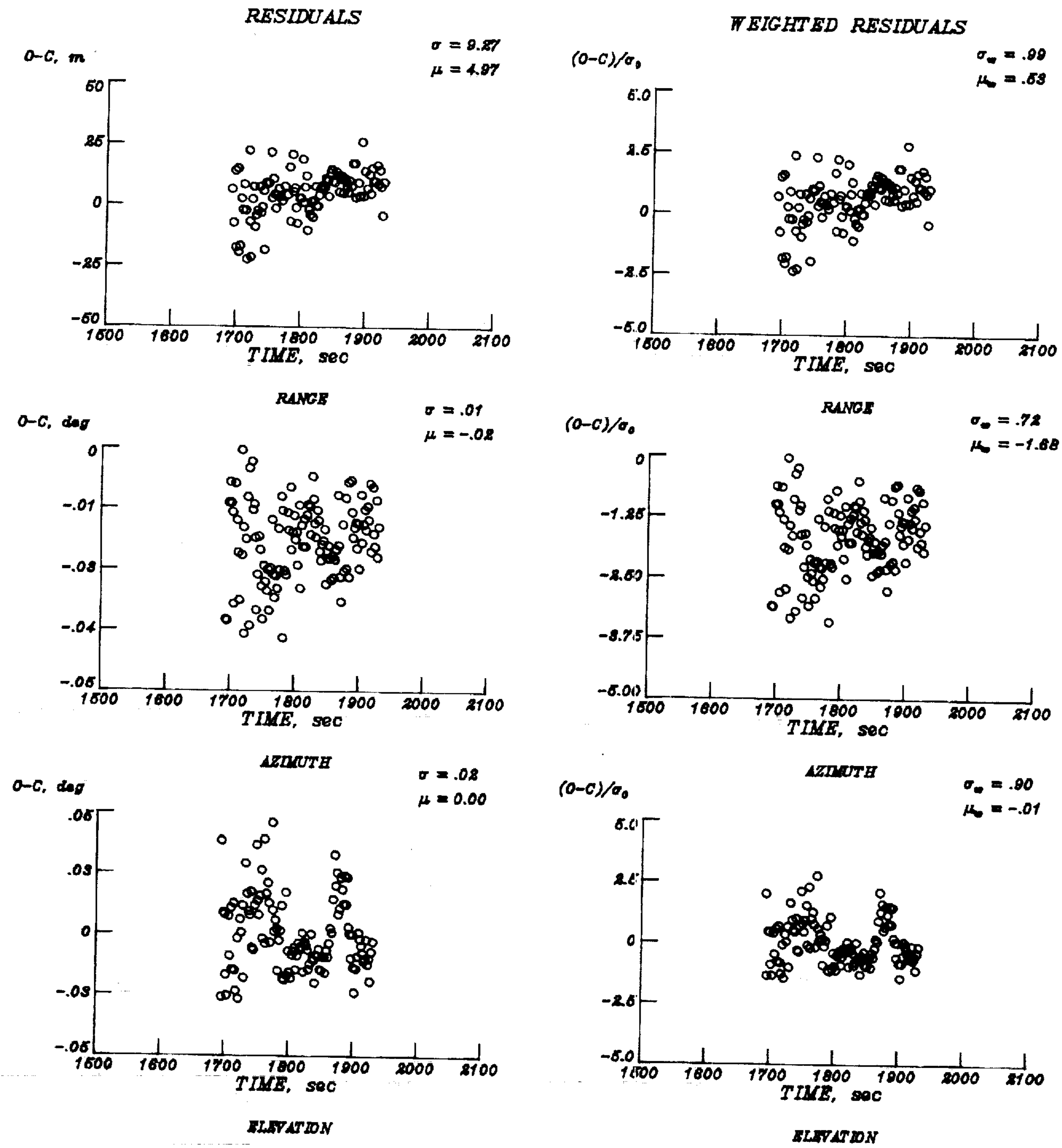


Figure III-4g. STS-1 final St. Nicolas Island (SNIC/FPS-16) residuals versus time from epoch

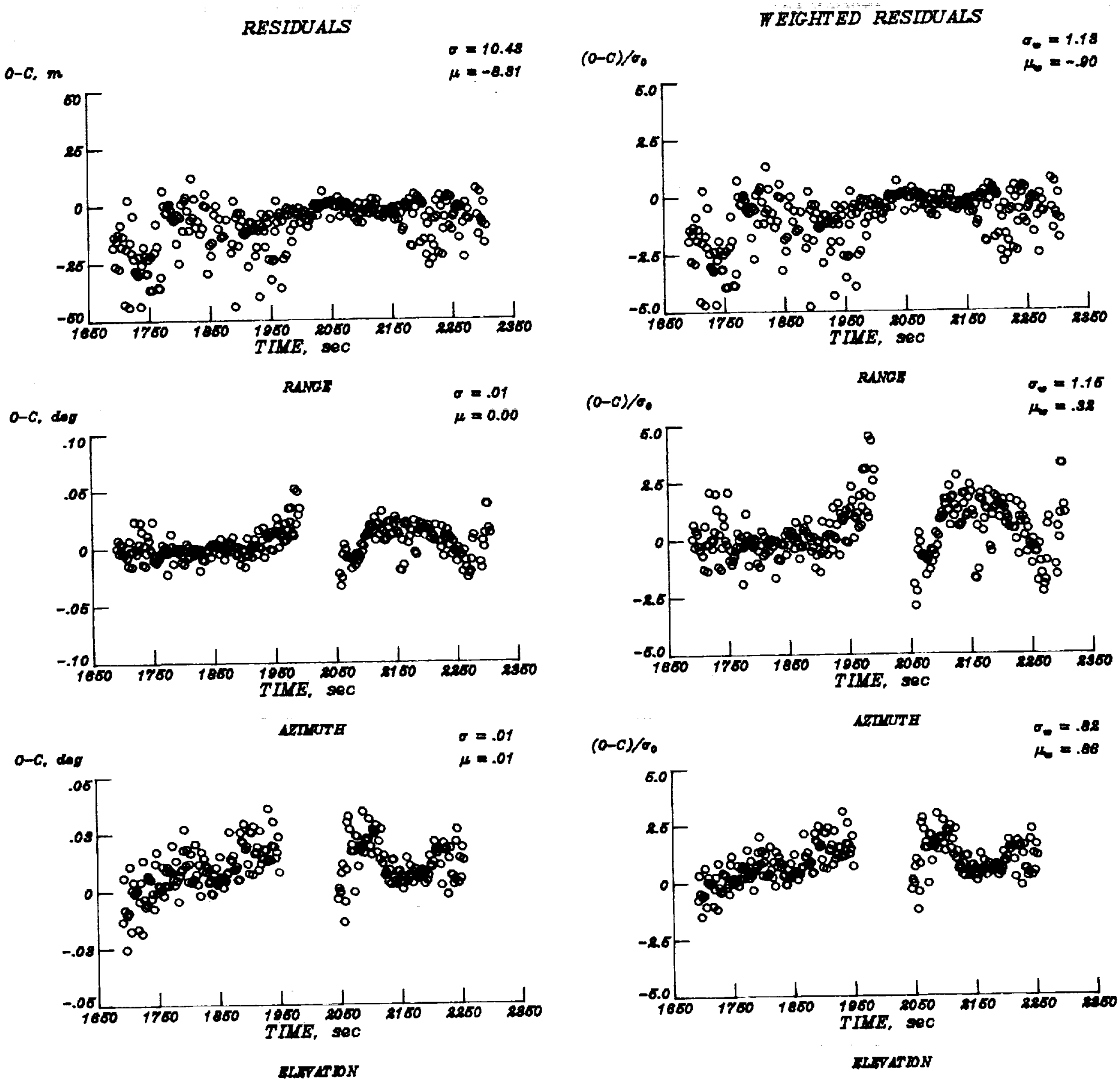


Figure III-4h. STS-1 final NASA Dryden (FRCC/FPS-16) residuals versus time from epoch

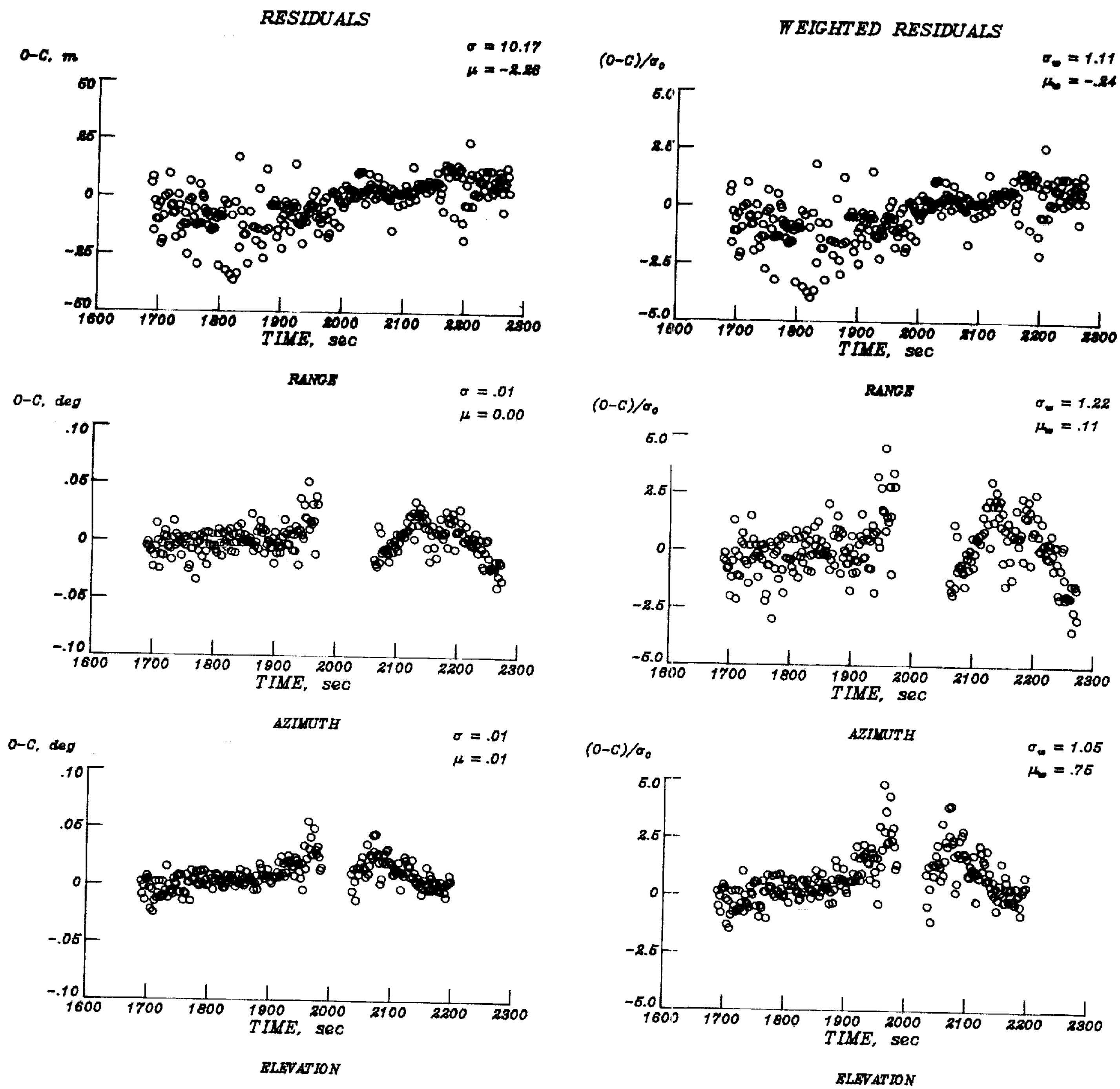


Figure III-4i. STS-1 final Edwards (EAFC/FPS-16) residuals versus time from epoch

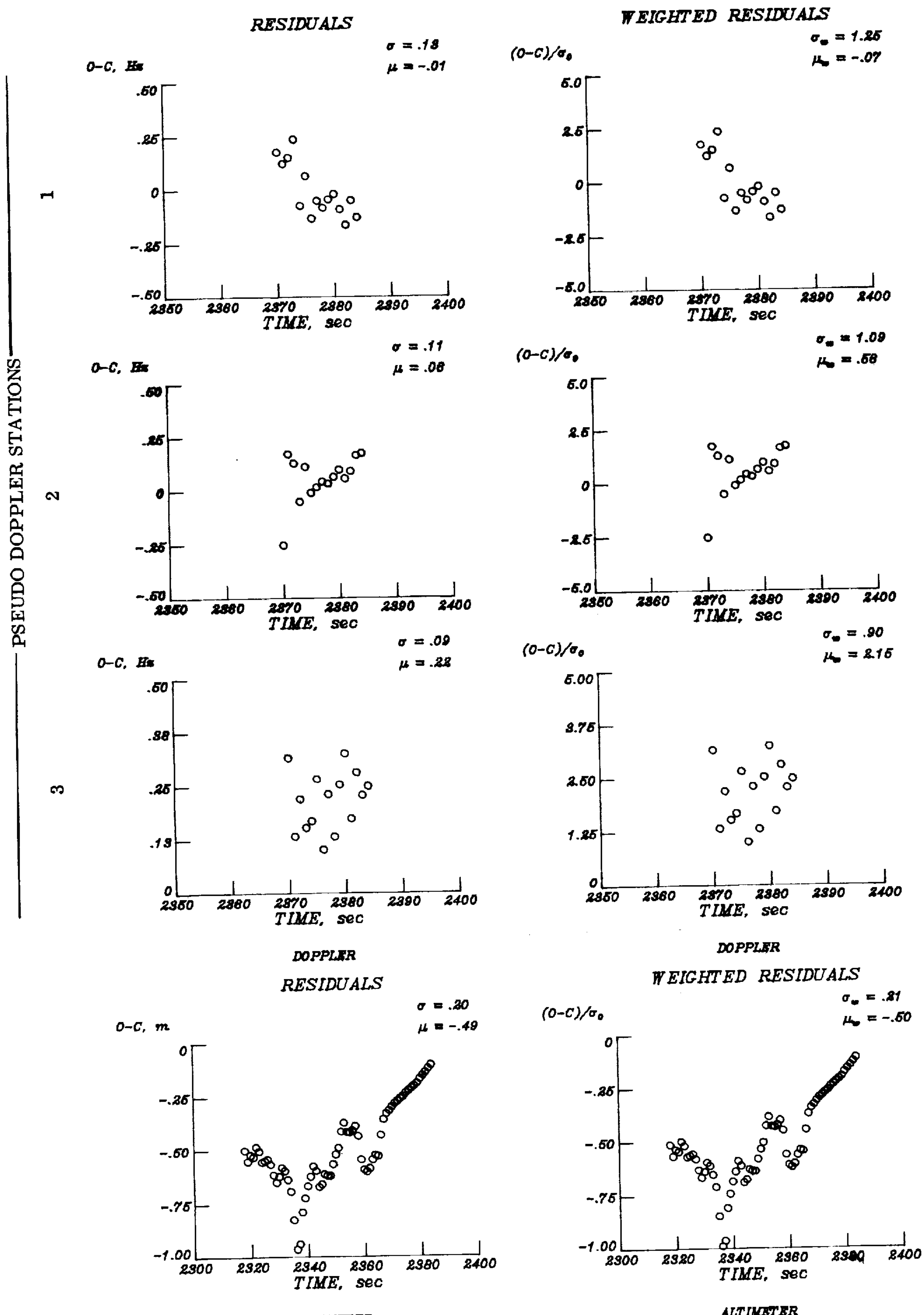


Figure III-4j. STS-1 final residuals for pseudo observables (Doppler and altimeter) versus time from epoch

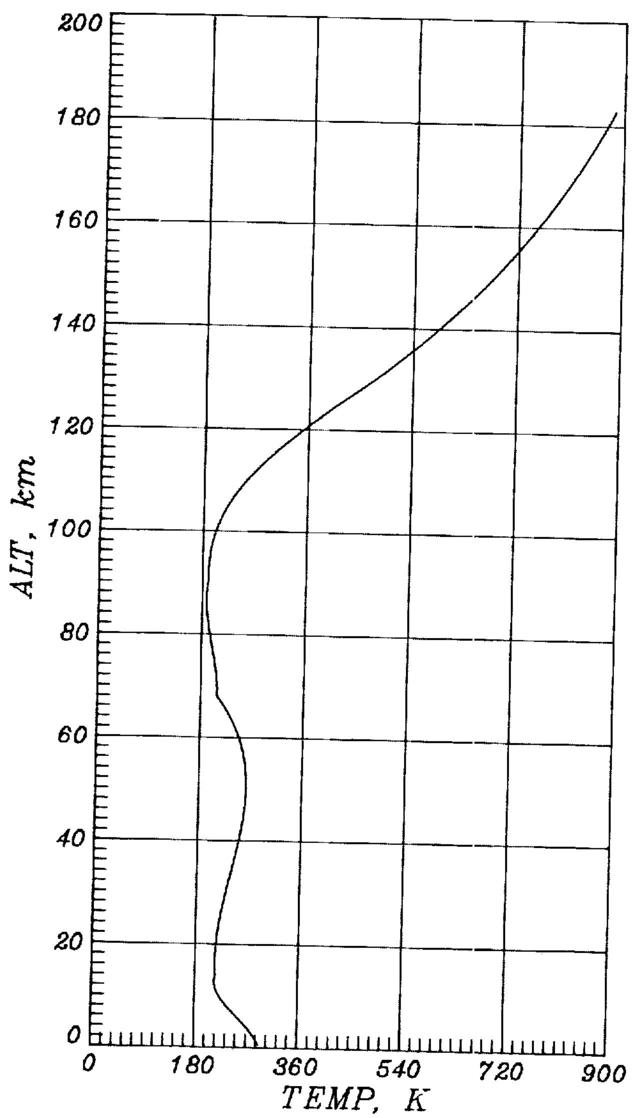


Figure III-5a. STS-1 temperature profile

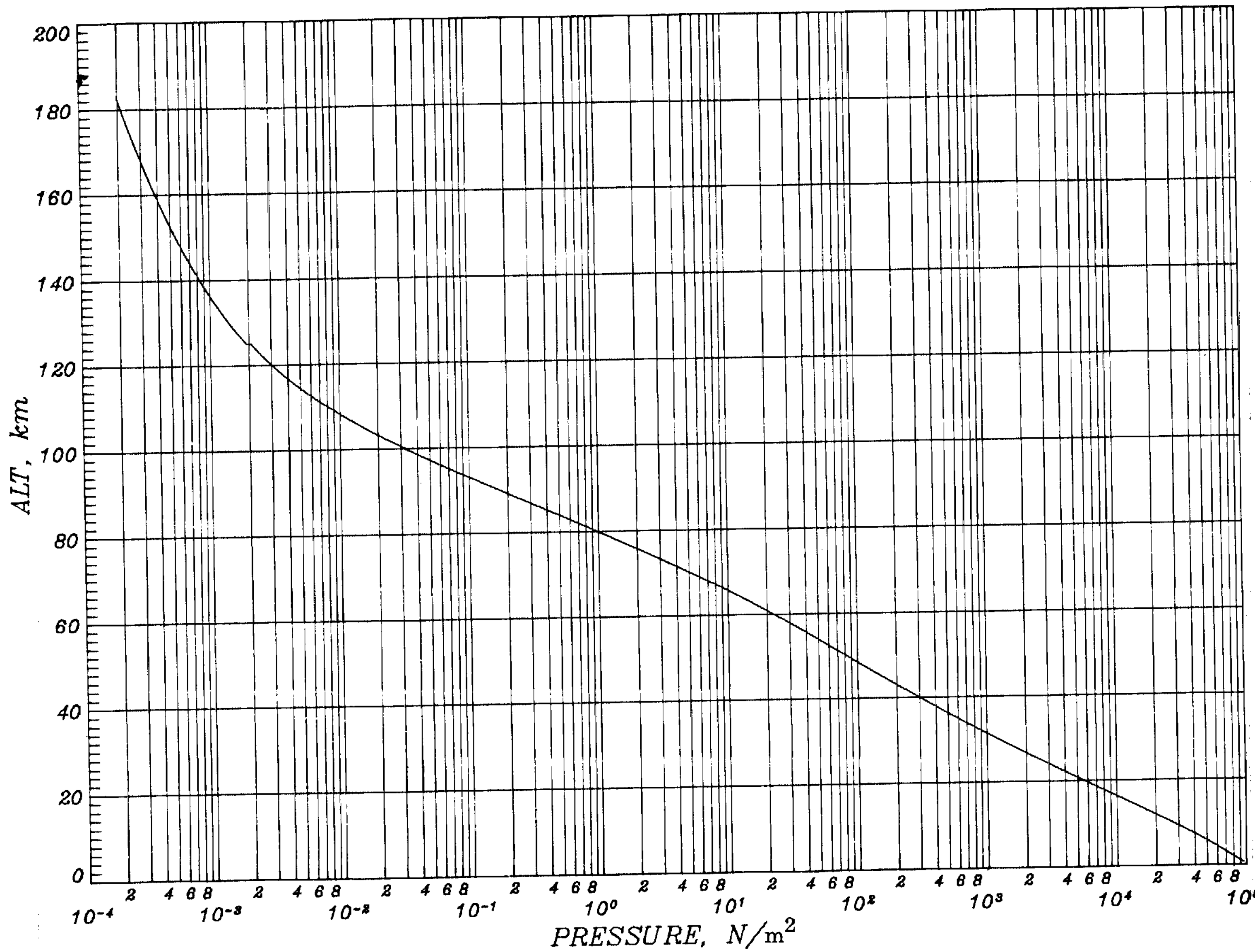


Figure III-5b. STS-1 pressure profile

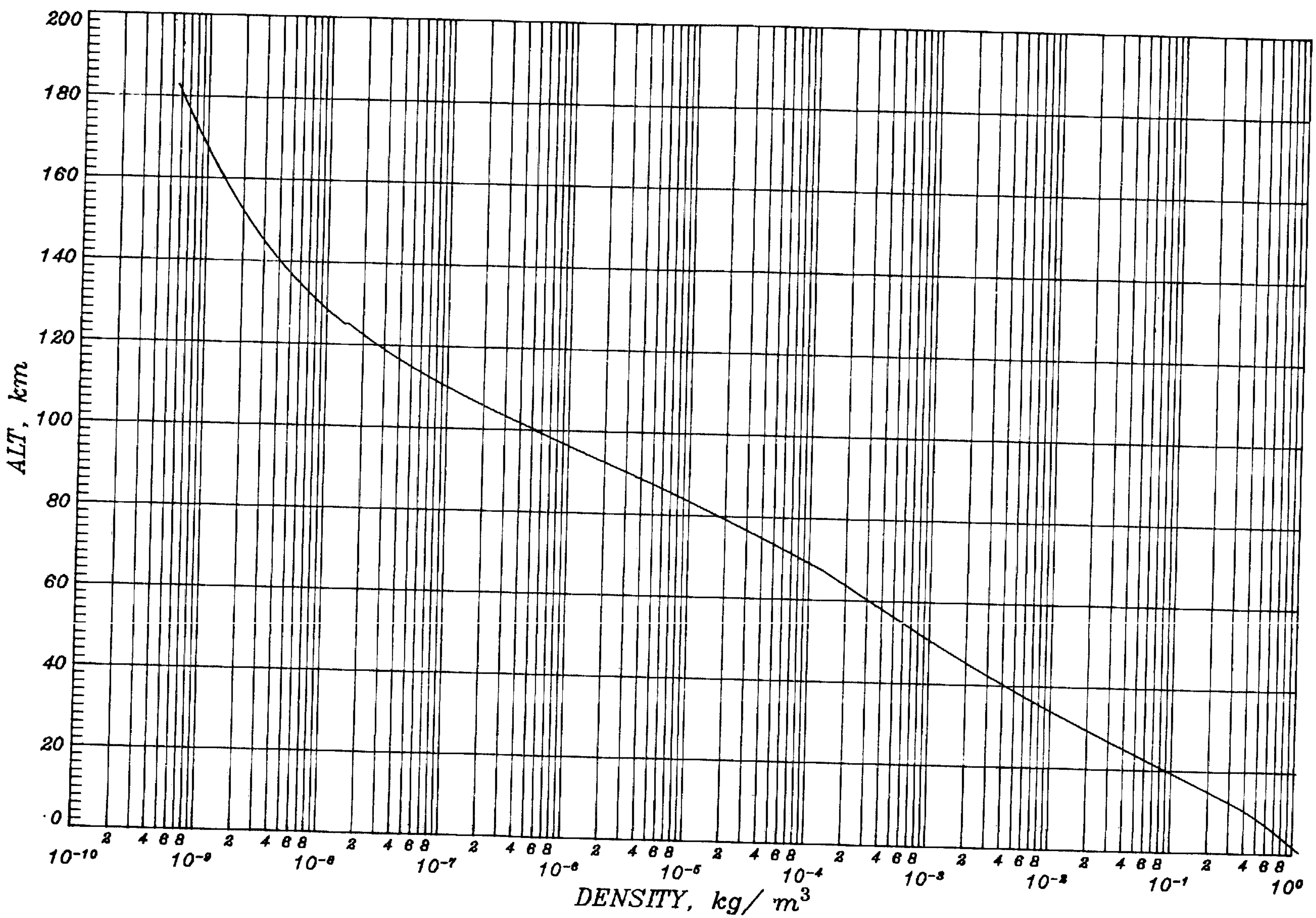


Figure III-5c. STS-1 density profile

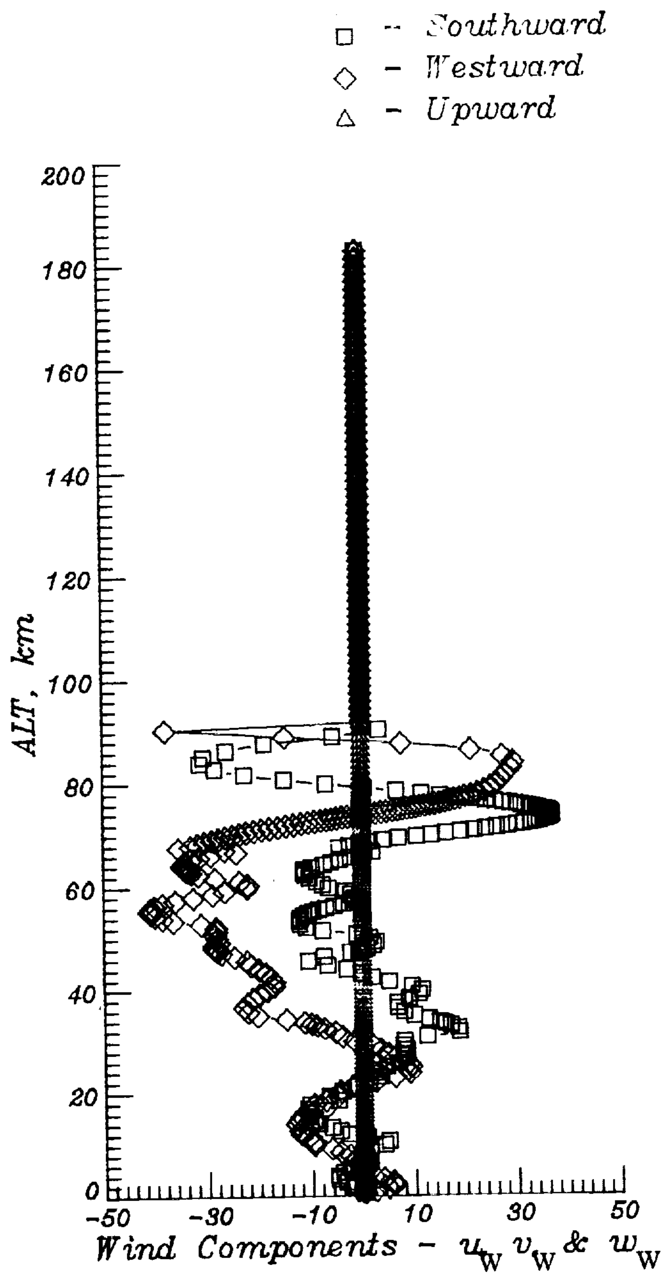


Figure III-5d. STS-1 atmospheric wind components versus altitude

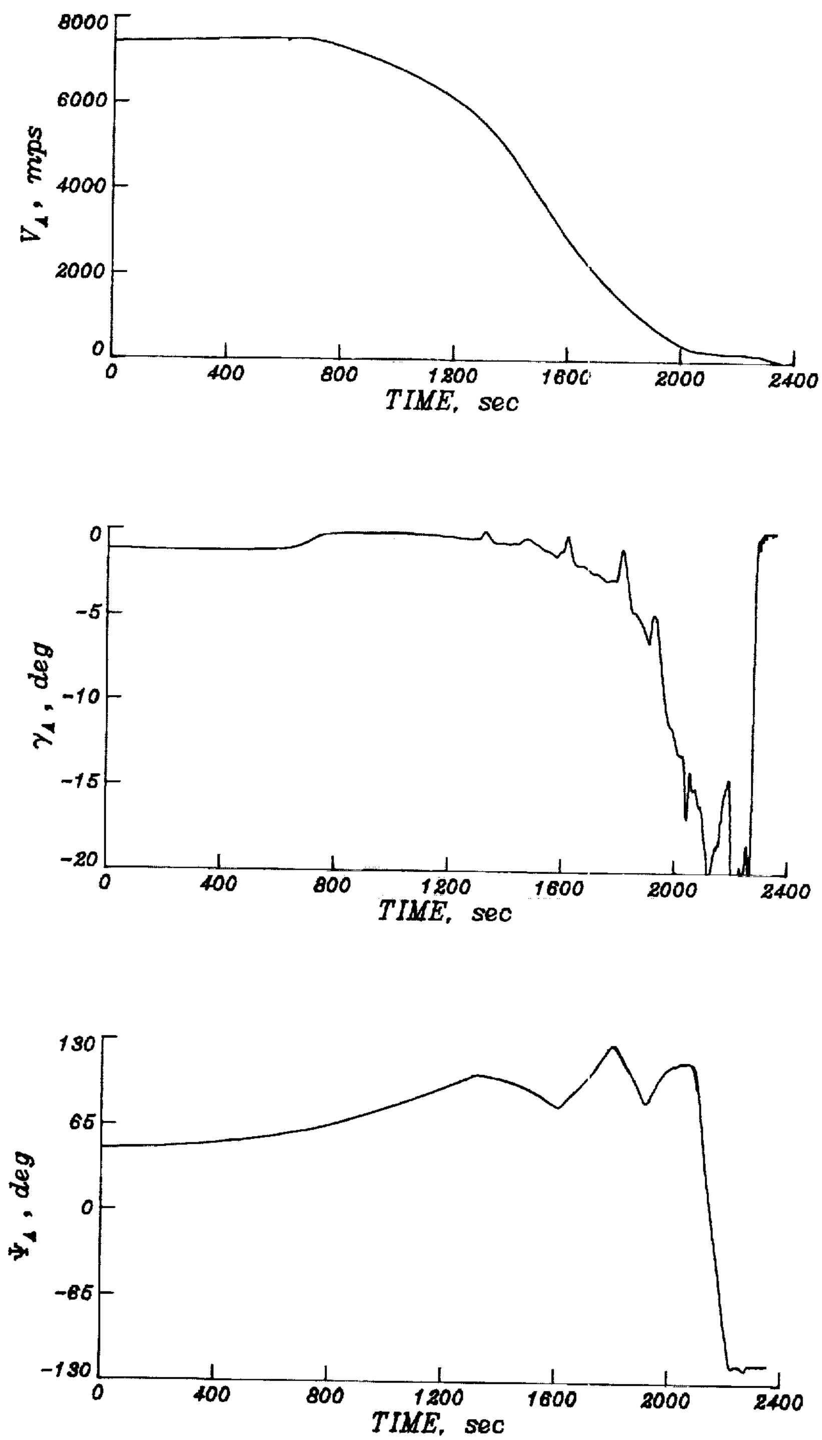


Figure III-5e. STS-1 BET atmospheric relative velocity, flight path angle, and heading angle versus time from epoch

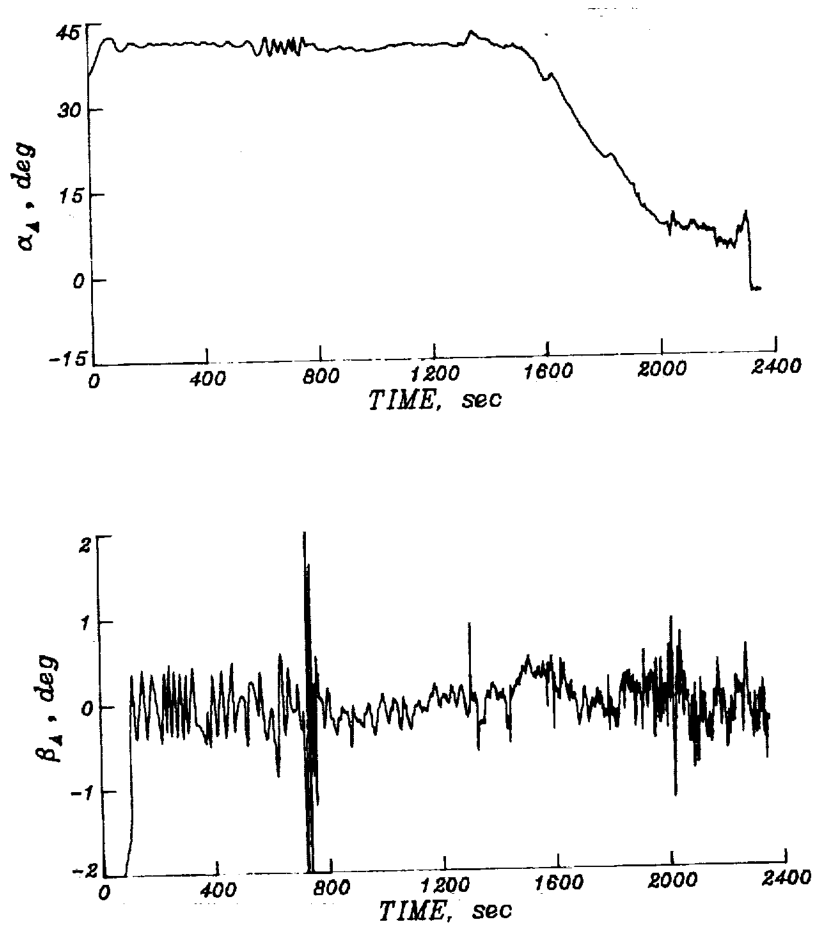


Figure III-5f. STS-1 BET atmospheric relative angle-of-attack and side-slip angle versus time from epoch

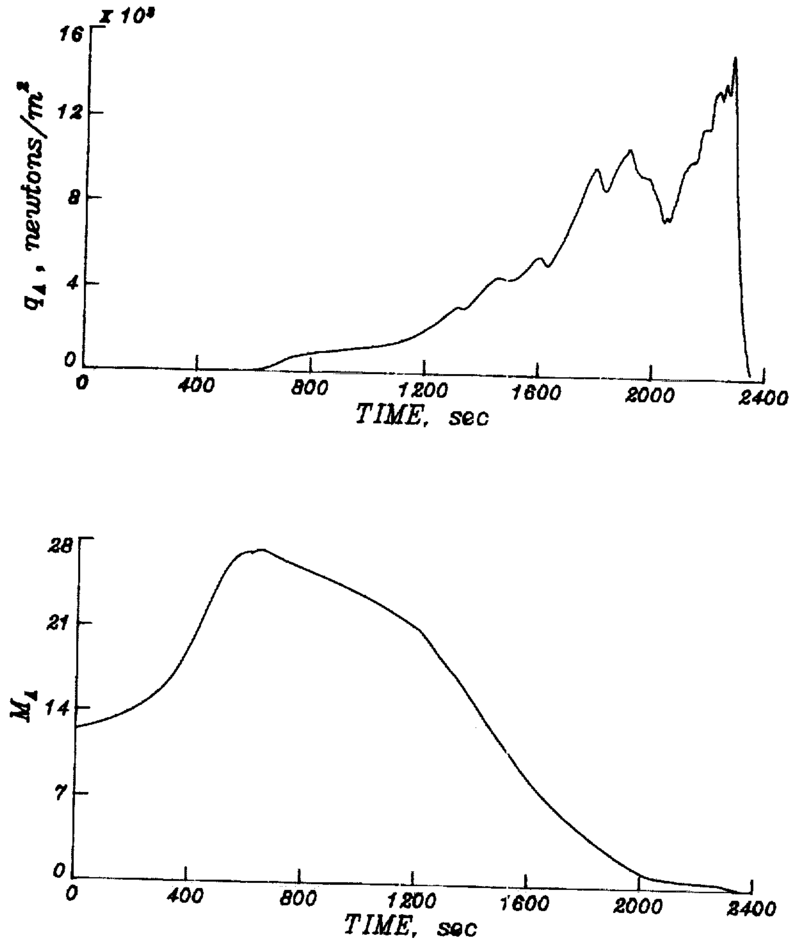


Figure III-5g. STS-1 BET dynamic pressure and Mach No. versus time from epoch

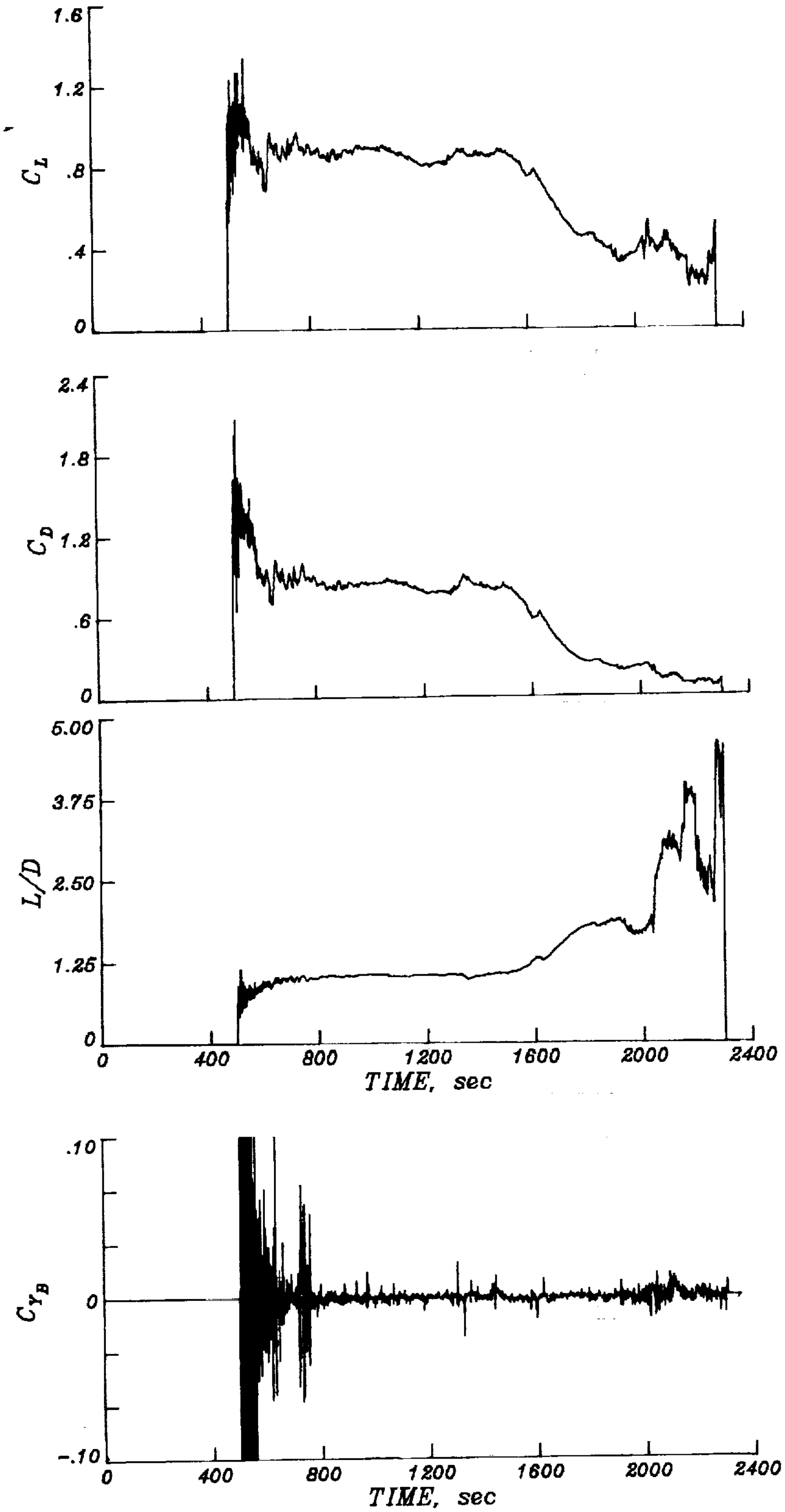


Figure III-5h. STS-1 BET flight derived aerodynamic performance coefficients versus time from epoch

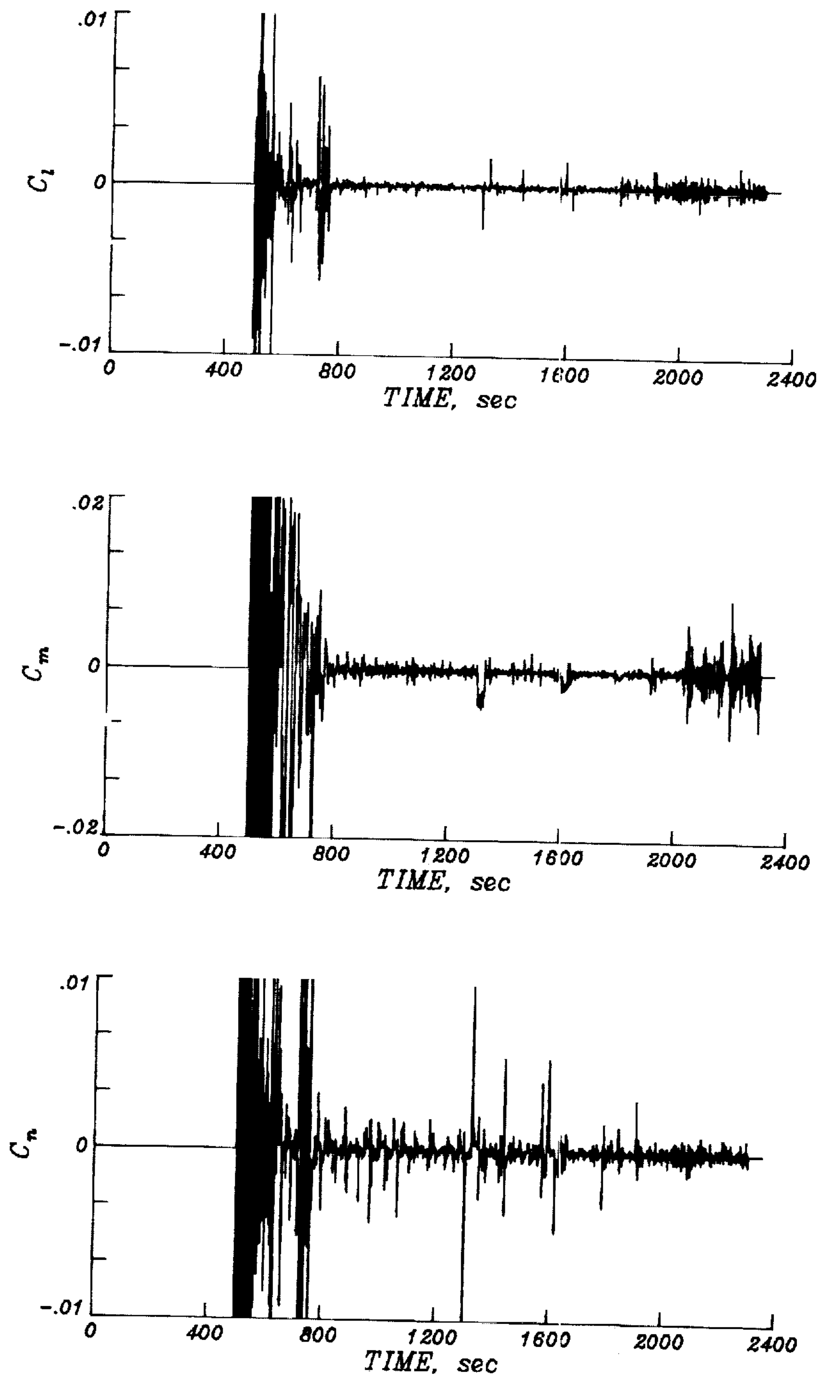


Figure III-5i. STS-1 BET flight derived moment coefficients versus time from epoch

IV. Summary

The STS-1 Space Shuttle re-entry trajectory has been successfully reconstructed using a weighted least squares batch filter algorithm. Dynamic data derived from the onboard Inertial Measurement Units (IMU) were used to propagate the state vector. Tracking data from eight California based C-band radar stations and the S-band tracking station at Guam were processed in the BET generation. The Guam data in particular were instrumental in anchoring the position and velocity estimates at $\sim$ 183 km altitude. Likewise, the pseudo altimeter and pseudo Doppler data processed during and post rollout significantly improved the estimation accuracy during the terminal portion of the trajectory.

Examination of the BET output demonstrated that the STS-1 re-entry trajectory was quite similar to the pre-mission nominal flight profile. IMU to IMU comparisons, and IMU systematic error solutions indicated nominal platform performance. Processing selected data from all available tracking stations resulted in an approximate 1 σ overall RMSW fit for each of the 3 IMU determined BETs, thus generating confidence in the accuracy of the estimation. In summary, the important in-plane entry parameters (V, γ , h) were determinable (1 σ) to 0.01 mps, 0.004 deg, and 250 m, respectively. Spacecraft attitude accuracies at epoch of 0.08 deg, 0.02 deg, and 0.05 deg are estimated for the inertial Euler angles ψ , θ , and φ , respectively.

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APPENDIX A

Discussion of the BET Generation Process

This Appendix is presented to provide for a general discussion of the data pre-processing required to enable the generation of a BET. Tracking data and dynamic data pre-processing requirements are addressed. A software overview is shown as Figure A-1. Table A-1 presents a list of acronyms for the software referred to herein. The overall ENTREE software system is summarized to show the data flow between receipt of data to generation of the final BET for the user community. Shuttle specific pre-processing requirements developed by AMA, Inc. under the subject contract to satisfy the ENTREE software are addressed. Pre-processing peculiar to the STS-1 flight are addressed in the text of the report. The output product from ENTREE is an inertial BET. The final product, as shown in Figure A-1, combines the ENTREE output with the best available atmosphere information (including winds). The atmosphere is provided by LaRC, with contractual help from the Space Systems Division of Computer Sciences Corporation, in the form of a Langley Atmospheric Information Retrieval System file. This atmosphere is developed from a combination of measurements and models as discussed in Ref. 5 and is translated in time and space to conform to the ground track and vertical profile of the BET. These data permit the computation of the required air relative parameters and, along with the measured accelerations, rates, and Shuttle mass properties, enables computation of flight derived aerodynamic force and moment coefficients.

A.1 ENTREE Software Description

The major estimation software, ENTREE (Ref. 8), was initially developed by the Computer Sciences Corporation under Contract NAS1-15663 for LaRC. AMA, under the subject contract, has had considerable involvement in checkout and modifications/additions to this software. The software requires body-fixed (strapped-down) dynamic measurements for use in the six-degrees-of-freedom equations of motion for spacecraft prediction. Body axes conventions for the angular rates and linear accelerations conform to the usual aerodynamicists' definitions as depicted in Fig. A-2. A fourth order fixed step size Runge-Kutta integration algorithm is utilized. Definition of the variables utilized in the software can best be described by referring to

Figures A-3 a,b. Figure A-3a shows the planet model, position, and velocity parameters. The altitude corresponds to an altitude above an oblate spheroid which conforms to the Fischer model. Longitude, λ , is defined as positive Eastward from Greenwich. Inertial velocity components, u, v, and w, are geocentrically oriented to local North, East, and vertical (downward). The velocity heading angle, Ψ, is defined positive clockwise from North and the flight path angle, γ , is defined positive above the geocentric horizon. Spacecraft attitude parameters are shown as Figure A-3b. The velocity relative parameters are: σ , roll with respect to the velocity vector (positive right wing down); β , side-slip angle (positive nose left); and α, the angle-of-attack positive (nose up). Geocentrically oriented Euler angles are also utilized. The sequence is yaw, ψ , pitch , θ , and roll , φ , and orients the vehicle body axes to the local vertical system. Though not shown in the schematic, a software utility, TRANS, has been developed to compute the required ENTREE state variables from the initial state estimate in the inertial 1950.0 Mean Equator and Equinox (M50) system. Also, based on this M50 state and interpolated IMU measurements at epoch, initial attitude estimates are generated therein.

Batch weighted least squares and sequential Kalman filtering algorithms can be selected on option for the estimator. A weighted least squares batch filter is employed to obtain the best estimate based on the observations processed.

Potential observables which can be selected on option (see Refs. 8, 13, and 15) are:

C-band Range, Azimuth, and Elevation

S-band Range, Doppler, X-angle, and Y-angle

Tacan Range, and Bearing angle

Altimeter

Microwave Scanning Beam Range, Azimuth, and Wedge angle.

Of particular importance for Shuttle are the C-and S-band observables. Tacan accuracy, relative to these radars, and MSBLS timing staleness in the down-list do not warrant use of these observables.

A.2 Tracking data pre-processing

Two software utilities have been developed, PREOBS and OBEDIT, to employ the external observations in ENTREE (see Figure A-1). PREOBS reads the tracking data files from several sources, i.e., GSFC, JSC, and recorded OI data. These data are transmitted to LaRC and converted by the Orbiter Experiments (OEX) Data Manager to be compatible with the LaRC computer system.

The GSFC input as shown represents the primary source for high speed S-band tracking prior to the entry interface. These GSFC data were obtained through special arrangements with LaRC. These data are playback data. The necessity for the high rate data is as follows. The ENTREE program uses a modified formulation of an instantaneous range rate computation for Doppler frequency shift. Since the S-band Doppler measurement is accumulated cycles over a time interval (count time) and must be converted to frequency, an instantaneous formulation requires a very small count time for accuracy. Prior to entry interface the real time data are transmitted to the JSC at a 10 second rate which is unacceptably large in terms of count time.

Range, Doppler, X-angle, and Y-angle measurements are all included on the GSFC file. Low rate S-band data are also contained on the JSC tracking file prior to the entry interface. Use is made of these data to check on time tags for the high rate (playback) data from GSFC. The principal measurements taken from the JSC tracking data file are the C-band tracking data between end of communications blackout and touchdown. The C-band measurements (Range, Azimuth, Elevation) provided on the JSC file are in units compatible with ENTREE and require no units conversions or calibrations. S-band X and Y-angle measurements obtained from the JSC file are in units compatible with ENTREE. Those obtained from the GSFC file are converted from angle units (where one unit is a specified number of degrees) to radians.

S-band ranging measurements are in fact round trip light time measurements. As such they must be calibrated for timing delays occurring at both the station and the spacecraft. For Shuttle, S-band ranging measurements are calibrated "on site" for station delays but not the spacecraft delay. The signal turn around delay in the spacecraft S-band ranging transponder varies slightly over a station pass. This transponder delay is assumed constant, however, and is subtracted from each S-band ranging measurement. The value of the transponder delay is provided by the JSC. The S-band ranging measurements on the GSFC file are in units of round trip light time and are converted to average slant range. The S-band ranging measurements on the JSC file have already been converted to average slant range. In either case, the ranging measurement is "calibrated" by decreasing its value by the range equivalent of the transponder delay.

S-band Doppler data from either GSFC or JSC are provided as counted cycles. Doppler frequency is obtained by differencing the counter readings, dividing by the count time and then subtracting the frequency bias. The resulting "measurement", which may be thought of as average slant range rate over the count interval, is time-tagged at the midpoint of the count interval to better approximate instantaneous slant range rate.

On option, the alternate data types, TACAN, MSBLS, and altimeter, are obtained from the spacecraft recorded data as separate files. At present, no use is made of these data for entry reconstruction though pseudo altimeter measurements were processed to improve the BET during rollout for STS-1.

Software PREOBS reads the tracking data files and merges and orders by time and station all the data types for ENTREE processing. During the estimation process blunder points can be rejected within ENTREE, either by sigma rejection or elevation masking. Another tracking data processor, OBEDIT, may be used as a preprocessor but it is really an "in-line" processor. OBEDIT is used for time deletion of selected measurements on the ENTREE input tracking data file. The "selected" measurements are either isolated blunder points or a group of measurements over a time interval. An examination of post-fit residuals is used in determining which data are to be deleted from the tracking file prior to the next ENTREE estimation run.

A.3 Dynamic Data

There are four potential sources of dynamic data available for use in ENTREE. There are the strapped-down measurements from the Aerodynamic Coefficient Identification Package (ACIP)[1] and the measurements from the tri-redundant IMUs. Though the ACIP measurements satisfy the ENTREE strapped-down requirements, pre-flight test results (Ref. 16) indicated that these data were not of sufficient accuracy to utilize in the BET generation. (The ACIP data are of sufficient accuracy to extract aerodynamic coefficients and, because of the high frequency (~ 170 Hz) of the measurements, are utilized by MMLE investigators to extract stability derivatives and aerodynamic control surface effectiveness). Therefore, this discussion focuses on the utilization of the tri-redundant IMUs to satisfy the ENTREE interface.

IMU data are obtained via the JSC. These data are also converted by the OEX Data Manager for LaRC use. IMU pre-processing requirements are two-fold. First, due to the redundant nature of the IMUs, comparisons must be made to define, at least on a relative basis, the performance of the tri-redundant set. Secondly, pre-processing to emulate the required strapped-down measurements is required.

The tri-redundant IMUs are gimballed inertial platforms whose orientations are skewed with respect to one another and are located at the navigation base in the nose of the Shuttle vehicle. The 1 σ accuracy specifications[2] for these units are defined in Ref. 17 and listed here:

accelerometer bias: 50 μ g (10 μg)
accelerometer scale factor: 100 ppm
gyro drift bias: .035 deg/hr (.022 deg/hr)
gyro g-sensitive drift bias: .025 deg/hr/g
initial platform misalignments: (80 $\widehat{\text{sec}}$)

---

[1] The simplified schematic, Figure A-1, does not show any pre-processing refinements to utilize the ACIP data in ENTREE. It should be understood that, at a minimum, comparisons of ACIP measurements with derived IMU body axis data are required.

[2] Numbers in parentheses presume pre-deorbit calibrations and star tracker alignment.

Additionally, the IMU accumulated velocity output as measured by the accelerometers is quantized to 1 cm/sec. Likewise, the gyro gimbal resolver output, the ultimate source of the platform to outer roll quaternion, is quantized to multiples of 20 $\widehat{sec}$.

The output of each IMU consists of the 3 components of accumulated sensed velocity, expressed in M50 coordinates, and the 4 components of the platform to outer roll quaternion. This output is available from the real time telemetry data and is simultaneously recorded onboard. Because the IMU output data rate differs from the downlist (D/L) sequencer data rate, the most frequent IMU output (6.25 Hz) is not time tagged and use of these data was not considered. However, time tags associated with the velocity (and quaternion) components are stored and recorded within the D/L frame at approximately 1 Hz in order to insure data homogeneity. These data are not at a uniform rate. For example, the 4 quaternion components of all 3 IMUs are simultaneously output at a 0.96 second rate. With a 1.0 second D/L rate, each quaternion output record on the T/M tape differs in time from the previous record by 0.96 seconds, except for every 24th record which jumps to 1.92 sec when two quaternion output records fall within the same D/L frame and the first is overwritten. The same holds true for the velocity components of the IMUs (although time tagged different from the quaternion data) with the exception of an output rate change from 0.96 seconds to 0.16 seconds starting at the initialization of the entry guidance mode 5 minutes prior to entry interface. This change results in an input velocity record spacing of 0.96, 0.96, 0.96, 1.12, 0.96, 0.96, 0.96, 1.12 (seconds), etc., thereafter.

Selection of the best IMU for use in ENTREE is of utmost importance. A procedure has been established to compare independently the gyro and accelerometer performance of each IMU versus the remaining two as well as combinations of the measurements from the various sets. This procedure, and STS-1 results, are discussed in Ref. 11 and briefly summarized here. Figure A-1 shows the software flow to enable the mutual comparisons, specifically the utilities PREVEL, ABSATT and CALIBRT. PREVEL provides a measure of accelerometer performance by comparing M50 velocity measurements. These comparisons are not independent of gyro performance since the orientation of each platform with respect to the inertial frame is assumed absolutely known. ABSATT provides for a measure of gyro performance by comparing inertially referenced Euler angles as suggested independently by the tri-redundant set. Finally, the software utility, CALIBRT, determines first order calibrations, e.g., accelerometer scale factors, gyro drifts, accelerometer biases, of each IMU with respect to some selected fiducial reference set.

The major software required to satisfy the ENTREE interface is PREIMU. PREIMU, operating from the reformatted, edited, file generated by PRETM, derives the equivalent spacecraft rates and accelerations in the platform axes. Transformation to body axes and accommodation of sensor locations with respect to the Shuttle center-of-gravity are done internal to ENTREE. PREIMU processing of the IMU data into a form compatible for dynamic data input to ENTREE is described in detail in Reference 18. In summary, the M50 velocities are spline fitted and differentiated to yield an acceleration time history (which, when integrated, yields the original velocity history by definition) at a user defined rate with any data gaps filled, if required. The accelerations are rotated to platform coordinates using the REFSMMATs (see Table B-2 in Appendix B) and stored on the ENTREE input dynamic data file. The platform to outer roll quaternion information is combined with pad loaded navigation base to body and navigation base to outer roll transformation matrices to produce a set of platform to body Euler angles (or quaternions). These angles (quaternions) can then be spline fitted and differentiated to yield Euler angle rates (quaternion rates) at the same times as the acceleration data. The transformation to angular rates about the IMU X, Y, and Z axes is then straightforward. These rates are also stored on the ENTREE input dynamic data file, along with the platform to body Euler angles (or quaternions). These 11 element data records (time, platform attitude rates (3), platform accelerations (3), and quaternions (4) (or Euler angles (3) plus a flag (1)) provide the necessary information for ENTREE to solve for systematic IMU errors in the platform coordinate system as well as integrate the equations of motion in the strapped-down coordinate system.

As just described, the preprocessor program has the option of appending the platform to body attitude information to the dynamic data input file in the form of either quaternions or Euler angles. Furthermore, two of the 12 potential Euler angle sequences are programmed as options, with the beforementioned flag value signifying the sequence chosen. Each option has potential disadvantages. The differentiated quaternion data cannot be guaranteed to yield orthonormal transformations, while an Euler angle sequence could conceivably result in a singularity condition at a certain platform to body attitude. As it turned out, the Euler angle sequence chosen for the STS-1 post flight processing did not encounter any singularities.

As stated previously, the manipulations required to pre-process the IMU data result from the use of an inertial instrument's data in a strap-down formulation. The use of the Aerodynamic Coefficient Identification Package (ACIP) with its body mounted linear accelerometers and rate gyros would be a natural for input data. Unfortunately, the accuracy specifications associated with the ACIP preclude its use for BET generation.

ACRONYM	FUNCTION
ABSATT	Absolute IMU attitude measurement comparison software
CALIBRT	IMU calibration software for first order performance comparisons
ENTREE	Entry Trajectory Reconstruction Software
MMLE	Modified Maximum Likelihood Estimator
NEWBET	Software to merge inertial BET and atmosphere
OBEDIT	Observation data editor
PREIMU	Cubic spline processor to derive spacecraft rates and accelerations from IMU measurements
PREOBS	Software to pre-process observation data from available sources
PRETM	Software to pre-process and edit IMU data
PREVEL	IMU accelerometer performance comparison software for M50 velocity measurements
TRANS	Software to transform inertial M50 initial state estimates to ENTREE coordinates

TABLE A-1

Software Acronyms

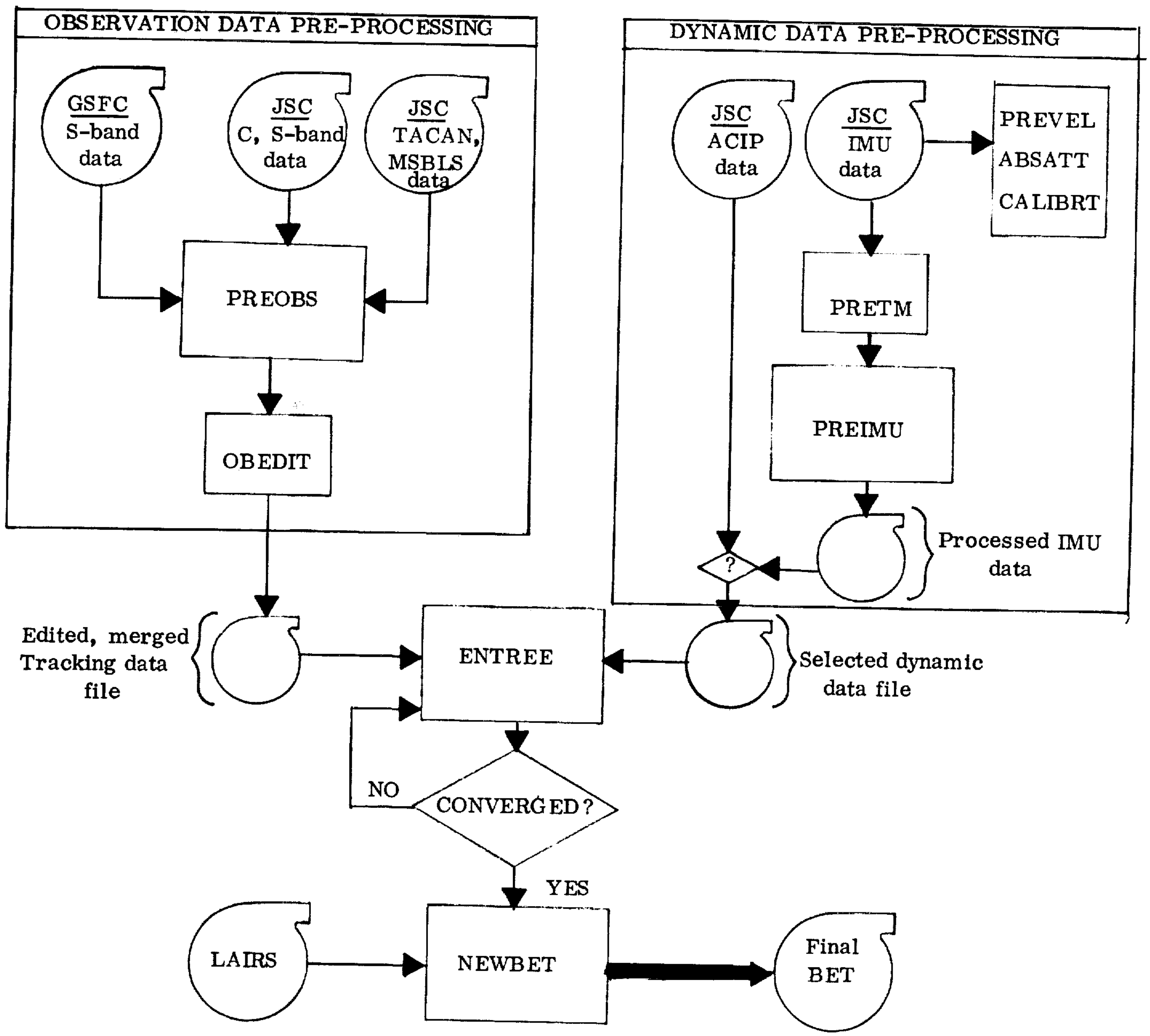

Figure A-1. Schematic of software/data interfaces required to generate BET

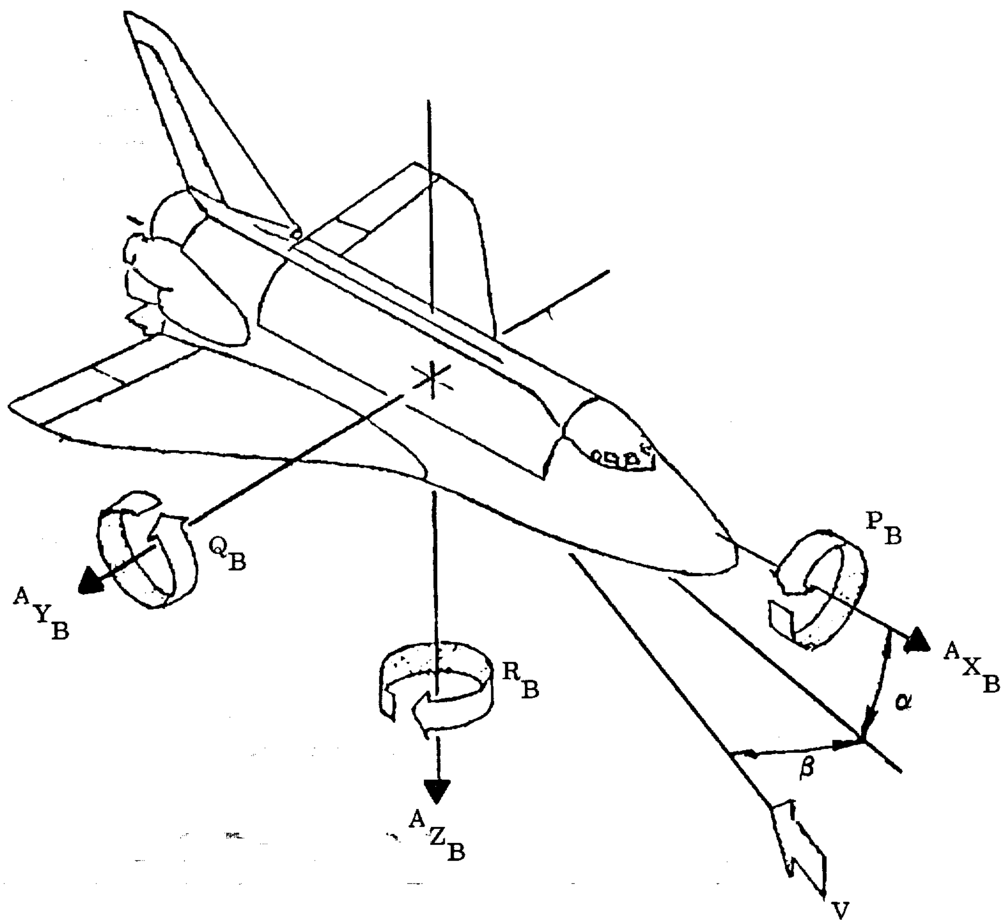

Figure A-2. Definition of required angular rates and linear accelerations for ENTREE strapped-down deterministic integration formulation

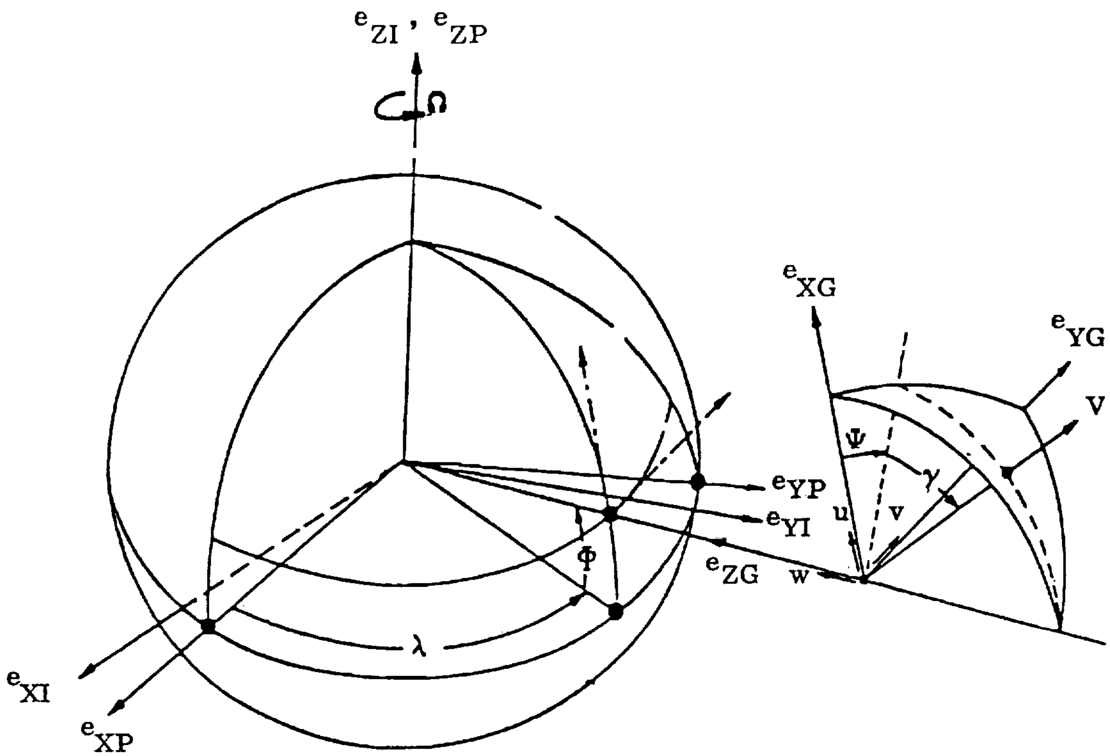

Figure A-3a. Schematic of ENTREE Earth model, spacecraft position and velocity parameters.

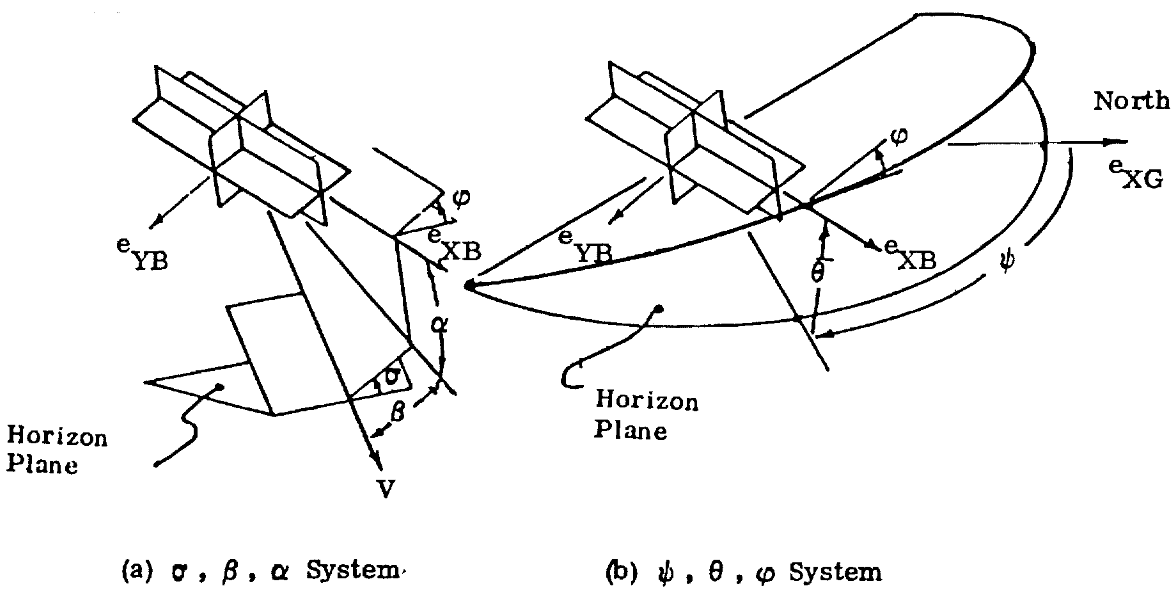

Figure A-3b. Schematic of ENTREE attitude parameters

APPENDIX B

STS-1 MISSION SPECIFIC INPUT DATA

This Appendix contains STS-1 mission specific input data required to generate the BET. Table B-1 presents the station characteristics which includes type, internal numbering system and associated acronym utilized, the best location set for metric data processing, station frequency and radar mount if applicable, index of refraction based on the mean monthly average for April, 1981, and the atmospheric scale height utilized in the refraction modelling. Table B-2 presents the relevant attitude matrices required to process the IMU measurements to derive body axis data. Table B-3 lists the elements of the a priori diagonal covariance matrix used in the batch solution. Finally, Table B-4 presents the inputs utilized for the planet model, runway location, IMU location with respect to the Shuttle center-of-gravity, and mass properties and associated aerodynamic reference parameters required to compute the in-flight aerodynamic force and moment coefficients.

Type	Station No.	Station Name	Latitude (Geod) (deg)	Longitude (deg)	Alt (above ref.) (m)	Modulus of Refraction	Scale Height (m)
S-band	1	GWMS	13.3106	144.7368	115.946	369.00	6100.
C-band, FPQ-6	2	PTPC	37.4978	237.5004	-8.240	325.00	7300.
C-band, TPQ-18	3	VDBC	34.6659	239.4187	62.040	324.00	7213.
C-band, FPS-16	4	VDFC	34.5831	239.4390	601.120	307.00	6885.
C-band, FPS-16	5	VDSC	34.5828	239.4385	601.110	307.00	6885.
C-band, FPS-16	7	SNIC	33.2470	240.4800	222.630	320.00	7076.
C-band, FPS-16	9	FRCC	34.9608	242.0886	756.010	290.00	7833.
C-band, FPS-16	10	EAFC	34.9696	242.0697	768.620	290.00	7815.
C-band, FPS-16	20	PPTC	37.4977	237.5014	2.050	325.00	7281.

NOTE: Guam antenna mounted North-South
Frequency is 210.64063 MHz
S-band transponder delay is 137.16 m

TABLE B-1

Station locations and refraction data for STS-1 data processing

"REFSMMAT" MATRICES (M50 TO PLATFORM)

	(IMU1)	
-0.79266172	-0.57519790	-0.20207602
-0.44474863	+0.77226827	-0.45365167
+0.41699673	-0.26971874	-0.86796603
	(IMU2)	
+0.39075335	-0.88816900	-0.24179873
+0.73866644	+0.45929717	-0.49337438
+0.54925762	+0.01417890	+0.83553258
	(IMU3)	
-0.11996126	-0.55783236	+0.82123822
+0.22795183	+0.78963381	+0.56966257
-0.96625435	+0.25553983	+0.03243346

NAV BASE TO OUTER ROLL Transformation Matrices

	(IMU1)	
0.99999938	-3.9528892E-4	-1.0380259E-3
3.9528871E-4	0.99999992	-4.1032019E-7
1.0380260E-3	0.0	0.99999946
	(IMU2)	
0.9999979	1.9876E-3	-5.693E-4
-1.9876E-3	0.9999980	-6.3E-6
5.693E-4	7.5E-6	0.9999998
	(IMU3)	
0.9999934	3.7771341E-3	-3.9463471E-4
-3.7771382E-3	0.99999338	-1.0690797E-5
3.9459304E-4	1.1723317E-5	1.0

NAV BASE TO BODY (all IMUs)

0.9829565	4.363323E-4	-0.1838379
-4.529508E-4	0.9999999	-4.84048E-5
0.1838379	1.308493E-4	0.9829566

TABLE B-2

STS-1 Attitude transformation matrices required for IMU processing

σ_{V_R}	= 3.0	mps
σ_{γ_R}	= 1.0	deg
σ_{ψ_R}	= 1.0	deg
σ_h	= 1.524	km
σ_{φ_D}	= 1.0	deg
σ_λ	= 1.0	deg
σ_ψ	= .28	deg
σ_θ	= .28	deg
σ_φ	= .28	deg

platform drift (each axis) = 0.083 deg/hr

accelerometer scale factor (each axis) = 400 ppm

TABLE B-3

Initial state vector a priori 1σ uncertainties

Planet Parameters

Physical Model

Polar Radius:	6356.784284 km
Equatorial Radius:	6378.166 km
Rotational Rate:	.7292115147E-4 rad/sec

Gravity Model

Central term, μ:	.398601999995E15 m^3/sec^2
J_2:	.10827E-2
J_3:	.256E-5
J_4:	.158E-5
C_{22}:	.157E-5
S_{22}:	-.897E-6

Runway 23 Location:

Altitude:	635.8128 m (above ellipsoid)
Geodetic Latitude:	34.966397 deg
Longitude:	242.180352E deg
Azimuth:	244.413472 deg

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

(Assumed constant during Entry)

X_B	17.0688 m
Y_B	0.0 m
Z_B	-1.2192 m

STS-1 mass properties and aerodynamic reference parameters

Weight	89930.448 kg
Reference Area	249.909 m^2
Span	23.792 m
Chord	12.060 m

Moments and products of inertia:

I_{xx}	1213866 kg-m^2
I_{yy}	9378654 kg-m^2
I_{zz}	9759518 kg-m^2
I_{xz}	228209 kg-m^2
I_{xy}	6136 kg-m^2
I_{yz}	2972 kg-m^2

TABLE B-4

Planet and spacecraft data used for STS-1 BET generation

APPENDIX C

LISTING OF STS-1 BET PARAMETERS

This Appendix is presented to provide a listing of the actual BET parameters at a reasonable spacing. The listing was generated from a permanent file (METBET1 under user catalog, UN = 274885C) which is the metric equivalent to STS1BET, that version in English units widely used by the user community at LaRC and the various other NASA agencies, including the AFFTC at Edwards and Rockwell personnel. Alphanumeric definition of the variables and units utilized are as defined in Ref. 7 and as noted on the listing of the header record. Above ~ 30 km, the data are presented at 50 sec intervals. The remainder of the data are given at a 5 sec spacing. Both files, METBET1 and STS1BET, are actually written at 1 sec spacing.

```
*******************************************************************************************
*                                   PRTBET INPUT DATA                                     *
*******************************************************************************************
```

MULTIPLE - INTERVAL PRINTOUT OPTION

INDEX	TSTART	TSTOP	PRTFRQ
1	0.	.18500000E+04	.50000000E+02
2	.18500000E+04	.25000000E+04	.50000000E+01

```
*****************************************************************************************
*                                  LARC "EXTENDED" BET HEADER RECORD
****************************************************************************************
```

...DESCRIPTIVE DATA (48-WORDS)

```
METBET1 USING LAIRS(USE8,10/81     ),AMABETH,NE0105 DYNAM. DATA
    810414      2385RACKING DATA FROM GSFC AND JSC (EXT'D DFRC,EAFC)
  INIT COND FROM 8-19-81 ESOLVE (ARHODVQ)
  MLH IMU OPTION --- IMU NUMBER 2 EULER SEQ 1 (TAPE NT0364--2384S)
  GWMS---8 C-BANDS---ALTIMETER---PSEUDO DOPPLER POST STOP
  EDITED TRACKING TAPE INPUT,   VARIABLE SCALE HEIGHT REFRAC MODEL
```

...LABELS AND UNITS FOR DATA ITEMS

(1)	TIME	SEC	(2)	VEL A	M/SEC	(3)	GAM A	DEG
(4)	HDG A	DEG	(5)	ALTDE	METERS	(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	M/SEC	(15)	V	M/SEC
(16)	W	M/SEC	(17)	VEL R	M/SEC	(*18)	GAM R	DEG
(19)	HDG R	DEG	(20)	SIGMAR	DEG	(21)	BETA R	DEG
(22)	ALPHAR	DEG	(23)	U-WIND	M/SEC	(24)	V-WIND	M/SEC
(25)	W-WIND	M/SEC	(26)	SIG-VA	M/SEC	(27)	SIG-GA	DEG
(28)	SIG-HA	DEG	(29)	SIG-H	METERS	(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	M/SEC	(39)	SIG-V	M/SEC
(40)	SIG-W	M/SEC	(41)	MACH A	NONE	(42)	MACH R	NONE
(43)	PINF	NEWTON/M2	(44)	TEMP	DEG KELVIN	(45)	RHO	KG/M3
(46)	Q A	NEWTON/M2	(47)	Q R	NEWTON/M2	(48)	PSTAG	NEWTON/M2
(49)	P	DEG/SEC	(50)	Q	DEG/SEC	(51)	R	DEG/SEC
(52)	X ACCEL	M/SEC/SEC	(53)	Y ACCEL	M/SEC/SEC	(54)	Z ACCEL	M/SEC/SEC
(55)	CXB	NONE	(56)	CYB	NONE	(57)	CZB	NONE
(58)	CL	NONE	(59)	CD	NONE	(50)	L/D	NONE
(61)	CL-ROLL	NONE	(62)	CM-PITCH	NONE	(63)	CN-YAW	NONE
(64)	PDOT	DEG/SEC2	(65)	QDOT	DEG/SEC2	(66)	RDOT	DEG/SEC2

...NUMERICAL DATA

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ISERNO   1  NWDS  66  IUNITS   2
EPOCH      .63750000E+05  RADE      .63781660E+07  RADP       .63567843E+07  OMEGA      .72921151E-04
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TIME	0.	VEL A	.7411084E+04	GAM A	-.1155585E+01	HDG A	.4721815E+02
ALTDE	.1829935E+06	LATD	.1933955E+01	LONG	.1407613E+03	SIGMAA	-.7416849E+01
BETA A	-.1525754E+01	ALPHAA	.3559273E+02	YAW E	.4349406E+02	PTCH E	.3429357E+02
ROLL E	-.9021912E+01	U	.5032650E+04	V	.5916398E+04	W	.1494623E+03
VEL R	.7411084E+04	GAM R	-.1155585E+01	HDG R	.4721815E+02	SIGMAR	-.7416849E+01
BETA R	-.1525755E+01	ALPHAR	.3559273E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.3087988E-02	SIG-GA	.2155279E-03	SIG-HA	.7849792E-04
SIG-H	.1678717E+02	SIG-LA	.4615584E-04	SIG-LO	.2033107E-04	SIG-SA	.4913874E-02
SIG-BA	.9590285E-03	SIG-AA	.1316919E-02	SIG-YE	.4913874E-02	SIG-PE	.9590285E-03
SIG-RE	.1316919E-02	SIG-U	.7085785E-02	SIG-V	.8710301E-02	SIG-W	.2790712E-01
MACH A	.1242170E+02	MACH R	.1242170E+02	PINF	.1965662E-03	TEMP	.8860400E+03
RHO	.5680591E-09	Q A	.1560008E-01	Q R	.1560008E-01	PSTAG	.3914212E-01
P	-.4348405E-01	Q	-.1297700E-03	R	.5666326E-01	X ACCEL	-.3147758E-03
Y ACCEL	.1057753E-01	Z ACCEL	-.5838447E-02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.2130541E-01
QDOT	.3792426E-02	RDOT	-.1577376E-01				

TIME	.5000000E+02	VEL A	.7420425E+04	GAM A	-.1182447E+01	HDG A	.4737252E+02
ALTDE	.1755132E+06	LATD	.4145886E+01	LONG	.1431447E+03	SIGMAA	-.1665779E+01
BETA A	-.2760406E+01	ALPHAA	.4150774E+02	YAW E	.4863518E+02	PTCH E	.4038439E+02
ROLL E	-.2258910E+01	U	.5024256E+04	V	.5935241E+04	W	.1531288E+03
VEL R	.7420425E+04	GAM R	-.1182447E+01	HDG R	.4737252E+02	SIGMAR	-.1665779E+01
BETA R	-.2760406E+01	ALPHAR	.4150774E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.4190062E-02	SIG-GA	.2034844E-03	SIG-HA	.8088533E-04
SIG-H	.1543466E+02	SIG-LA	.3883951E-04	SIG-LO	.2176291E-04	SIG-SA	.4805260E-02
SIG-BA	.8263465E-03	SIG-AA	.1273048E-02	SIG-YE	.4805260E-02	SIG-PE	.8263465E-03
SIG-RE	.1273048E-02	SIG-U	.6587475E-02	SIG-V	.9865759E-02	SIG-W	.2638135E-01
MACH A	.1270914E+02	MACH R	.1270914E+02	PINF	.2412047E-03	TEMP	.8485498E+03
RHO	.7406074E-09	Q A	.2038991E-01	Q R	.2038991E-01	PSTAG	.5027433E-01
P	.9063259E-01	Q	.3541990E-01	R	.3788028E-01	X ACCEL	-.8723145E-02
Y ACCEL	.1880096E-02	Z ACCEL	-.5136926E-02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.1442392E-01
QDOT	.6715687E-03	RDOT	-.1711914E-01				

TIME	.1000000E+03	VEL A	.7429902E+04	GAM A	-.1205138E+01	HDG A	.4763667E+02		
ALTDE	.1679248E+06	LATD	.6354245E+01	LONG	.1455486E+03	SIGMAA	.1498169E+01		
BETA A	-.1493741E+01	ALPHAA	.4096489E+02	YAW E	.5037969E+02	PTCH E	.3970513E+02		
ROLL E	.1905544E+01	U	.5005380E+04	V	.5963078E+04	W	.1562662E+03		
VEL R	.7429902E+04	GAM R	-.1205138E+01	HDG R	.4763667E+02	SIGMAR	.1498169E+01		
BETA R	-.1493742E+01	ALPHAR	.4096489E+02	U-WIND	0.	V-WIND	0.		
W-WIND	0.	SIG-VA	.5473988E-02	SIG-GA	.1905019E-03	SIG-HA	.8299394E-04		
SIG-H	.1416119E+02	SIG-LA	.3242862E-04	SIG-LO	.2265643E-04	SIG-SA	.5057536E-02		
SIG-BA	.8922332E-03	SIG-AA	.1672202E-02	SIG-YE	.5057536E-02	SIG-PE	.8922332E-03		
SIG-RE	.1672202E-02	SIG-U	.6182941E-02	SIG-V	.1098085E-01	SIG-W	.2476586E-01		
MACH A	.1306406E+02	MACH R	.1306406E+02	PINF	.3013422E-03	TEMP	.8051222E+03		
RHO	.9933086E-09	Q A	.2741702E-01	Q R	.2741702E-01	PSTAG	.6635797E-01		
P	.5641475E-01	Q	-.2140190E+00	R	-.3184262E-01	X ACCEL	.1784686E-02		
Y ACCEL	.1875017E-02	Z ACCEL	-.7879176E-02	CXB	0.	CYB	0.		
CZB	0.	CL	0.	CD	0.	L/D	0.		
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.2670500E-01		
QDOT	-.3022448E-04	RDOT	-.1059157E-02						

TIME	.1500000E+03	VEL A	.7439523E+04	GAM A	-.1223392E+01	HDG A	.4801230E+02
ALTDE	.1602537E+06	LATD	.8554307E+01	LONG	.1479810E+03	SIGMAA	-.3649777E+00
BETA A	.3848983E+00	ALPHAA	.4148862E+02	YAW E	.4731762E+02	PTCH E	.4026184E+02
ROLL E	-.4673968E+00	U	.4975691E+04	V	.5999972E+04	W	.1588382E+03
VEL R	.7439523E+04	GAM R	-.1223392E+01	HDG R	.4801230E+02	SIGMAR	-.3649777E+00
BETA R	.3848976E+00	ALPHAR	.4148862E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.6761034E-02	SIG-GA	.1769011E-03	SIG-HA	.8493871E-04
SIG-H	.1297133E+02	SIG-LA	.2696130E-04	SIG-LO	.2291571E-04	SIG-SA	.4964208E-02
SIG-BA	.9298595E-03	SIG-AA	.1757693E-02	SIG-YE	.4964208E-02	SIG-PE	.9298595E-03
SIG-RE	.1757693E-02	SIG-U	.5881672E-02	SIG-V	.1204676E-01	SIG-W	.2306517E-01
MACH A	.1350948E+02	MACH R	.1350948E+02	PINF	.3846363E-03	TEMP	.7548574E+03
RHO	.1378989E-08	Q A	.3816110E-01	Q R	.3816110E-01	PSTAG	.9056187E-01
P	-.4876412E-01	Q	-.9754063E-01	R	.1242597E-01	X ACCEL	.6303629E-03
Y ACCEL	-.2634288E-02	Z ACCEL	-.4192419E-02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.1075638E-01
QDOT	-.2917040E-01	RDOT	-.5607540E-02				

TIME	.2000000E+03	VEL A	.7449179E+04	GAM A	-.1237293E+01	HDG A	.4850198E+02		
ALTDE	.1525265E+06	LATD	.1074112E+02	LONG	.1504500E+03	SIGMAA	.6224572E-01		
BETA A	-.3080775E-02	ALPHAA	.4080555E+02	YAW E	.4855778E+02	PTCH E	.3956822E+02		
ROLL E	.8064260E-01	U	.4934632E+04	V	.6045913E+04	W	.1608513E+03		
VEL R	.7449179E+04	GAM R	-.1237293E+01	HDG R	.4850198E+02	SIGMAR	.6224574E-01		
BETA R	-.3081545E-02	ALPHAR	.4080555E+02	U-WIND	0.	V-WIND	0.		
W-WIND	0.	SIG-VA	.7989024E-02	SIG-GA	.1627344E-03	SIG-HA	.8674926E-04		
SIG-H	.1186949E+02	SIG-LA	.2250732E-04	SIG-LO	.2254677E-04	SIG-SA	.5008887E-02		
SIG-BA	.8792473E-03	SIG-AA	.2013519E-02	SIG-YE	.5008887E-02	SIG-PE	.8792473E-03		
SIG-RE	.2013519E-02	SIG-U	.5680269E-02	SIG-V	.1305454E-01	SIG-W	.2128506E-01		
MACH A	.1407963E+02	MACH R	.1407963E+02	PINF	.5040899E-03	TEMP	.6967657E+03		
RHO	.1998929E-08	Q A	.5546053E-01	Q R	.5546053E-01	PSTAG	.1288963E+00		
P	-.6693269E-02	Q	-.4516091E-01	R	.2930877E-01	X ACCEL	.3204253E-02		
Y ACCEL	.7393854E-02	Z ACCEL	-.3902220E-03	CXB	0.	CYB	0.		
CZB	0.	CL	0.	CD	0.	L/D	0.		
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.2530265E-01		
QDOT	-.3318355E-02	RDOT	.4619709E-03						

TIME	.2500000E+03	VEL A	.7458883E+04	GAM A	-.1246560E+01	HDG A	.4910874E+02
ALTDE	.1447680E+06	LATD	.1290946E+02	LONG	.1529642E+03	SIGMAA	-.8794348E-02
BETA A	-.3189907E+00	ALPHAA	.4111392E+02	YAW E	.4941432E+02	PTCH E	.3986743E+02
ROLL E	-.2049653E-01	U	.4881619E+04	V	.6100949E+04	W	.1622669E+03
VEL R	.7458883E+04	GAM R	-.1246560E+01	HDG R	.4910874E+02	SIGMAR	-.8794331E-02
BETA R	-.3189915E+00	ALPHAR	.4111392E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.9129383E-02	SIG-GA	.1480629E-03	SIG-HA	.8849982E-04
SIG-H	.1085983E+02	SIG-LA	.1917222E-04	SIG-LO	.2161784E-04	SIG-SA	.4907100E-02
SIG-BA	.8613005E-03	SIG-AA	.2101474E-02	SIG-YE	.4907100E-02	SIG-PE	.8613005E-03
SIG-RE	.2101474E-02	SIG-U	.5566090E-02	SIG-V	.1400327E-01	SIG-W	.1943220E-01
MACH A	.1482922E+02	MACH R	.1482922E+02	PINF	.6833893E-03	TEMP	.6297429E+03
RHO	.3065110E-08	Q A	.8526354E-01	Q R	.8526354E-01	PSTAG	.1938107E+00
P	-.8312346E-01	Q	-.8708045E-01	R	.4603963E-01	X ACCEL	.8674897E-03
Y ACCEL	.6388831E-03	Z ACCEL	-.5806098E-02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.1350618E-01
QDOT	-.1087269E-01	RDOT	.5636775E-02				

TIME	.3000000E+03	VEL A	.7468597E+04	GAM A	-.1251293E+01	HDG A	.4983601E+02
ALTDE	.1370038E+06	LATD	.1505382E+02	LONG	.1555321E+03	SIGMAA	-.2412696E-01
BETA A	.1688126E+00	ALPHAA	.4101712E+02	YAW E	.4964971E+02	PTCH E	.3976575E+02
ROLL E	-.2658459E-01	U	.4815928E+04	V	.6165048E+04	W	.1630951E+03
VEL R	.7468597E+04	GAM R	-.1251293E+01	HDG R	.4983601E+02	SIGMAR	-.2412694E-01
BETA R	.1688118E+00	ALPHAR	.4101712E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1016627E-01	SIG-GA	.1329497E-03	SIG-HA	.9023491E-04
SIG-H	.9946353E+01	SIG-LA	.1707085E-04	SIG-LO	.2025352E-04	SIG-SA	.4860085E-02
SIG-BA	.8194737E-03	SIG-AA	.2269933E-02	SIG-YE	.4860085E-02	SIG-PE	.8194737E-03
SIG-RE	.2269933E-02	SIG-U	.5518401E-02	SIG-V	.1489047E-01	SIG-W	.1751396E-01
MACH A	.1585107E+02	MACH R	.1585107E+02	PINF	.9696229E-03	TEMP	.5526027E+03
RHO	.5074014E-08	Q A	.1415140E+00	Q R	.1415140E+00	PSTAG	.3141268E+00
P	.8409625E-01	Q	-.5691640E-01	R	-.1789393E-01	X ACCEL	.7960153E-02
Y ACCEL	-.1106678E-02	Z ACCEL	.2043093E-02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.2080466E-02
QDOT	.1719030E-01	RDOT	.1048141E-01				

TIME	.3500000E+03	VEL A	.7478271E+04	GAM A	-.1251377E+01	HDG A	.5068756E+02
ALTDE	.1292587E+06	LATD	.1716830E+02	LONG	.1581624E+03	SIGMAA	.2118361E+00
BETA A	-.2430073E+00	ALPHAA	.4128015E+02	YAW E	.5110856E+02	PTCH E	.4002757E+02
ROLL E	.2696454E+00	U	.4736720E+04	V	.6238098E+04	W	.1633172E+03
VEL R	.7478271E+04	GAM R	-.1251376E+01	HDG R	.5068756E+02	SIGMAR	.2118361E+00
BETA R	-.2430081E+00	ALPHAR	.4128015E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1109049E-01	SIG-GA	.1174664E-03	SIG-HA	.9198980E-04
SIG-H	.9132820E+01	SIG-LA	.1624184E-04	SIG-LO	.1865527E-04	SIG-SA	.4769150E-02
SIG-BA	.7990800E-03	SIG-AA	.2384033E-02	SIG-YE	.4769150E-02	SIG-PE	.7990800E-03
SIG-RE	.2384033E-02	SIG-U	.5514987E-02	SIG-V	.1571367E-01	SIG-W	.1553877E-01
MACH A	.1731950E+02	MACH R	.1731950E+02	PINF	.1469614E-02	TEMP	.4640705E+03
RHO	.9393426E-08	Q A	.2626614E+00	Q R	.2626614E+00	PSTAG	.5682750E+00
P	-.3477874E-01	Q	-.7017369E-01	R	-.2777503E-01	X ACCEL	-.2648829E-02
Y ACCEL	-.4562679E-02	Z ACCEL	.8244082E-03	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.2798049E-03
QDOT	.6380540E-02	RDOT	.3493659E-02				

TIME	.4000000E+03	VEL A	.7487874E+04	GAM A	-.1246930E+01	HDG A	.5166774E+02		
ALTDE	.1215568E+06	LATD	.1924659E+02	LONG	.1608642E+03	SIGMAA	.1626727E-01		
BETA A	.2079053E+00	ALPHAA	.4116379E+02	YAW E	.5147763E+02	PTCH E	.3991692E+02		
ROLL E	.2710333E-01	U	.4643036E+04	V	.6319944E+04	W	.1629460E+03		
VEL R	.7487874E+04	GAM R	-.1246930E+01	HDG R	.5166774E+02	SIGMAR	.1626729E-01		
BETA R	.2079045E+00	ALPHAR	.4116379E+02	U-WIND	0.	V-WIND	0.		
W-WIND	0.	SIG-VA	.1189401E-01	SIG-GA	.1017052E-03	SIG-HA	.9379445E-04		
SIG-H	.8422760E+01	SIG-LA	.1655564E-04	SIG-LO	.1714081E-04	SIG-SA	.4685689E-02		
SIG-BA	.7683353E-03	SIG-AA	.2518389E-02	SIG-YE	.4685688E-02	SIG-PE	.7683353E-03		
SIG-RE	.2518389E-02	SIG-U	.5538721E-02	SIG-V	.1646799E-01	SIG-W	.1351766E-01		
MACH A	.1944316E+02	MACH R	.1944316E+02	PINF	.2683094E-02	TEMP	.3691779E+03		
RHO	.2222028E-07	Q A	.6229260E+00	Q R	.6229260E+00	PSTAG	.1307216E+01		
P	-.4742389E-01	Q	-.3160077E-01	R	.2211580E-01	X ACCEL	.2685028E-02		
Y ACCEL	-.2633303E-02	Z ACCEL	.3489905E-02	CXB	0.	CYB	0.		
CZB	0.	CL	0.	CD	0.	L/D	0.		
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.1034642E-02		
QDOT	.7039739E-02	RDOT	-.2923763E-02						

TIME	.4500000E+03	VEL A	.7497342E+04	GAM A	-.1237537E+01	HDG A	.5278151E+02
ALTDE	.1139229E+06	LATD	.2128191E+02	LONG	.1636464E+03	SIGMAA	.2077687E+00
BETA A	-.1055749E+00	ALPHAA	.4105639E+02	YAW E	.5306283E+02	PTCH E	.3981815E+02
ROLL E	.2674720E+00	U	.4533756E+04	V	.6410327E+04	W	.1619232E+03
VEL R	.7497342E+04	GAM R	-.1237537E+01	HDG R	.5278151E+02	SIGMAR	.2077688E+00
BETA R	-.1055757E+00	ALPHAR	.4105639E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1256900E-01	SIG-GA	.8579392E-04	SIG-HA	.9566548E-04
SIG-H	.7819444E+01	SIG-LA	.1774327E-04	SIG-LO	.1617633E-04	SIG-SA	.4570373E-02
SIG-BA	.7428534E-03	SIG-AA	.2614551E-02	SIG-YE	.4570373E-02	SIG-PE	.7428534E-03
SIG-RE	.2614551E-02	SIG-U	.5580726E-02	SIG-V	.1714527E-01	SIG-W	.1146622E-01
MACH A	.2204623E+02	MACH R	.2204623E+02	PINF	.5301022E-02	TEMP	.2878712E+03
RHO	.5800918E-07	Q A	.1630352E+01	Q R	.1630352E+01	PSTAG	.3319823E+01
P	.6224827E-01	Q	-.1073059E+00	R	-.3049919E-03	X ACCEL	-.3390381E-02
Y ACCEL	.5051058E-02	Z ACCEL	-.4387825E-02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.1848282E-01
QDOT	-.1180425E-02	RDOT	.1799399E-02				

TIME	.5000000E+03	VEL A	.7506474E+04	GAM A	-.1222798E+01	HDG A	.5403352E+02
ALTDE	.1063825E+06	LATD	.2326693E+02	LONG	.1665181E+03	SIGMAA	-.6180549E+00
BETA A	.9827738E-01	ALPHAA	.4123141E+02	YAW E	.5340523E+02	PTCH E	.4000470E+02
ROLL E	-.8039567E+00	U	.4407637E+04	V	.6508698E+04	W	.1601898E+03
VEL R	.7506474E+04	GAM R	-.1222798E+01	HDG R	.5403352E+02	SIGMAR	-.6180548E+00
BETA R	.9827651E-01	ALPHAR	.4123141E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1311222E-01	SIG-GA	.6991190E-04	SIG-HA	.9756434E-04
SIG-H	.7325813E+01	SIG-LA	.1952567E-04	SIG-LO	.1630389E-04	SIG-SA	.4435186E-02
SIG-BA	.7154818E-03	SIG-AA	.2681564E-02	SIG-YE	.4435186E-02	SIG-PE	.7154818E-03
SIG-RE	.2681564E-02	SIG-U	.5641755E-02	SIG-V	.1773388E-01	SIG-W	.9406152E-02
MACH A	.2470169E+02	MACH R	.2470169E+02	PINF	.1290445E-01	TEMP	.2298640E+03
RHO	.1822763E-06	Q A	.5135373E+01	Q R	.5135373E+01	PSTAG	.1014412E+02
P	-.3338388E-01	Q	-.1018046E+00	R	-.2265101E-01	X ACCEL	-.8625471E-02
Y ACCEL	-.3003238E-02	Z ACCEL	-.1188864E-01	CXB	-.6246447E+00	CYB	-.2174904E+00
CZB	-.8609586E+00	CL	.2357827E+00	CD	.1037226E+01	L/D	.2273205E+00
CL-ROLL	-.3470705E-02	CM-PITCH	-.2122779E-01	CN-YAW	-.1518363E-01	PDOT	-.5546694E-02
QDOT	-.1994531E-02	RDOT	-.2900822E-02				

TIME	.5500000E+03	VEL A	.7513954E+04	GAM A	-.1195391E+01	HDG A	.5542868E+02
ALTDE	.9898372E+05	LATD	.2519363E+02	LONG	.1694880E+03	SIGMAA	.7483893E+00
BETA A	.5487238E-01	ALPHAA	.4084121E+02	YAW E	.5601035E+02	PTCH E	.3964238E+02
ROLL E	.9731755E+00	U	.4262727E+04	V	.6613452E+04	W	.1567561E+03
VEL R	.7513954E+04	GAM R	-.1195391E+01	HDG R	.5542868E+02	SIGMAR	.7483893E+00
BETA R	.5487151E-01	ALPHAR	.4084121E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1351872E-01	SIG-GA	.5439039E-04	SIG-HA	.9925349E-04
SIG-H	.6944546E+01	SIG-LA	.2169901E-04	SIG-LO	.1786752E-04	SIG-SA	.4322850E-02
SIG-BA	.6726652E-03	SIG-AA	.2775128E-02	SIG-YE	.4322850E-02	SIG-PE	.6726652E-03
SIG-RE	.2775128E-02	SIG-U	.5719040E-02	SIG-V	.1820482E-01	SIG-W	.7376851E-02
MACH A	.2657053E+02	MACH R	.2657053E+02	PINF	.3748102E-01	TEMP	.1990623E+03
RHO	.6280810E-06	Q A	.1773056E+02	Q R	.1773056E+02	PSTAG	.3408779E+02
P	-.1357967E-01	Q	-.2546427E-01	R	.3195350E-01	X ACCEL	-.1605490E-01
Y ACCEL	-.5683764E-02	Z ACCEL	-.8092689E-01	CXB	-.3359259E+00	CYB	-.1189246E+00
CZB	-.1693279E+01	CL	.1061324E+01	CD	.1361482E+01	L/D	.7795361E+00
CL-ROLL	.1432743E-02	CM-PITCH	-.3151517E-01	CN-YAW	.1092956E-01	PDOT	.8439167E-02
QDOT	-.1029053E-01	RDOT	.6953998E-02				

TIME	.6000000E+03	VEL A	.7517530E+04	GAM A	-.1141437E+01	HDG A	.5697146E+02
ALTDE	.9184714E+05	LATD	.2705293E+02	LONG	.1725637E+03	SIGMAA	-.8438758E+00
BETA A	-.9357533E-01	ALPHAA	.3894090E+02	YAW E	.5639235E+02	PTCH E	.3779588E+02
ROLL E	-.1070097E+01	U	.4096668E+04	V	.6721915E+04	W	.1497531E+03
VEL R	.7517530E+04	GAM R	-.1141437E+01	HDG R	.5697146E+02	SIGMAR	-.8438758E+00
BETA R	-.9357624E-01	ALPHAR	.3894090E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1378182E-01	SIG-GA	.4004424E-04	SIG-HA	.1004903E-03
SIG-H	.6678072E+01	SIG-LA	.2413664E-04	SIG-LO	.2078424E-04	SIG-SA	.4139103E-02
SIG-BA	.6845734E-03	SIG-AA	.2833425E-02	SIG-YE	.4139103E-02	SIG-PE	.6845734E-03
SIG-RE	.2833425E-02	SIG-U	.5805672E-02	SIG-V	.1852913E-01	SIG-W	.5472265E-02
MACH A	.2720467E+02	MACH R	.2720467E+02	PINF	.1248973E+00	TEMP	.1900709E+03
RHO	.2264485E-05	Q A	.6398668E+02	Q R	.6398668E+02	PSTAG	.1190741E+03
P	.2229349E-01	Q	-.4347993E-01	R	-.7976305E-02	X ACCEL	-.2812509E-01
Y ACCEL	.2503993E-02	Z ACCEL	-.2246944E+00	CXB	-.1626789E+00	CYB	.1448340E-01
CZB	-.1299660E+01	CL	.9086218E+00	CD	.9433908E+00	L/D	.9631446E+00
CL-ROLL	-.5498838E-03	CM-PITCH	-.9325058E-02	CN-YAW	.3727137E-02	PDOT	-.8345026E-02
QDOT	-.1098448E-01	RDOT	.8139870E-02				

TIME	.6500000E+03	VEL A	.7520048E+04	GAM A	-.1026528E+01	HDG A	.5896717E+02
ALTDE	.8523396E+05	LATD	.2883458E+02	LONG	.1757507E+03	SIGMAA	-.1312544E+01
BETA A	-.3396376E+00	ALPHAA	.3994587E+02	YAW E	.5821871E+02	PTCH E	.3891462E+02
ROLL E	-.1694514E+01	U	.3906080E+04	V	.6828427E+04	W	.1347242E+03
VEL R	.7512033E+04	GAM R	-.1027624E+01	HDG R	.5866372E+02	SIGMAR	-.1307155E+01
BETA R	-.6429837E+00	ALPHAR	.3994003E+02	U-WIND	-.2989832E+02	V-WIND	.2746573E+02
W-WIND	0.	SIG-VA	.1389776E-01	SIG-GA	.2921391E-04	SIG-HA	.1008847E-03
SIG-H	.6529038E+01	SIG-LA	.2675815E-04	SIG-LO	.2467600E-04	SIG-SA	.3888386E-02
SIG-BA	.6225878E-03	SIG-AA	.2728191E-02	SIG-YE	.3888386E-02	SIG-PE	.6225878E-03
SIG-RE	.2728191E-02	SIG-U	.5867021E-02	SIG-V	.1867378E-01	SIG-W	.3965720E-02
MACH A	.2732796E+02	MACH R	.2729883E+02	PINF	.3986819E+00	TEMP	.1884860E+03
RHO	.7368594E-05	Q A	.2083511E+03	Q R	.2079072E+03	PSTAG	.3835447E+03
P	.4876910E-01	Q	.3115395E+00	R	.9715224E-01	X ACCEL	-.6242014E-01
Y ACCEL	.4256619E-02	Z ACCEL	-.6407451E+00	CXB	-.1106352E+00	CYB	.7544552E-02
CZB	-.1135675E+01	CL	.7996318E+00	CD	.8139941E+00	L/D	.9823558E+00
CL-ROLL	.7987036E-03	CM-PITCH	.1334473E-01	CN-YAW	.3642714E-03	PDOT	.4722752E-01
QDOT	.5124946E-01	RDOT	.3518213E-02				

TIME	.7000000E+03	VEL A	.7495989E+04	GAM A	-.7139002E+00	HDG A	.6065826E+02
ALTDE	.7995866E+05	LATD	.3052509E+02	LONG	.1790473E+03	SIGMAA	.8100195E+00
BETA A	.1169767E-01	ALPHAA	.3935749E+02	YAW E	.6130431E+02	PTCH E	.3863910E+02
ROLL E	.1037160E+01	U	.3680591E+04	V	.6913453E+04	W	.9339693E+02
VEL R	.7476774E+04	GAM R	-.7157351E+00	HDG R	.6050759E+02	SIGMAR	.8119036E+00
BETA R	-.1389200E+00	ALPHAR	.3936146E+02	U-WIND	-.7708361E+01	V-WIND	.2640819E+02
W-WIND	0.	SIG-VA	.1382531E-01	SIG-GA	.2797701E-04	SIG-HA	.9903170E-04
SIG-H	.6501238E+01	SIG-LA	.2946528E-04	SIG-LD	.2909174E-04	SIG-SA	.3798888E-02
SIG-BA	.5927240E-03	SIG-AA	.2817019E-02	SIG-YE	.3798888E-02	SIG-PE	.5927240E-03
SIG-RE	.2817019E-02	SIG-U	.5721342E-02	SIG-V	.1852396E-01	SIG-W	.3637096E-02
MACH A	.2680113E+02	MACH R	.2673242E+02	PINF	.9992841E+00	TEMP	.1947171E+03
RHO	.1787814E-04	Q A	.5022847E+03	Q R	.4997128E+03	PSTAG	.9246523E+03
P	-.9852491E-01	Q	.1258906E+00	R	-.1789525E-01	X ACCEL	-.1401663E+00
Y ACCEL	.2866449E-02	Z ACCEL	-.1586535E+01	CXB	-.1028669E+00	CYB	.2103663E-02
CZB	-.1164345E+01	CL	.8350428E+00	CD	.8179147E+00	L/D	.1020941E+01
CL-ROLL	-.1225036E-03	CM-PITCH	.4256551E-02	CN-YAW	-.7036594E-04	PDOT	-.1756423E-01
QDOT	.3937245E-01	RDOT	-.1461852E-02				

TIME	.7500000E+03	VEL A	.7428902E+04	GAM A	-.3055172E+00	HDG A	.6271713E+02
ALTDE	.7729280E+05	LATD	.3210427E+02	LONG	.1824431E+03	SIGMAA	.6181807E+02
BETA A	-.7531414E+00	ALPHAA	.4043211E+02	YAW E	.9979678E+02	PTCH E	.1706217E+02
ROLL E	.6720069E+02	U	.3387351E+04	V	.6981321E+04	W	.3961280E+02
VEL R	.7402760E+04	GAM R	-.3065961E+00	HDG R	.6276855E+02	SIGMAR	.6181721E+02
BETA R	-.7279037E+00	ALPHAR	.4038729E+02	U-WIND	.1788948E+02	V-WIND	.2019097E+02
W-WIND	0.	SIG-VA	.1253099E-01	SIG-GA	.2991223E-04	SIG-HA	.9268739E-04
SIG-H	.6584789E+01	SIG-LA	.3214390E-04	SIG-LD	.3350255E-04	SIG-SA	.3258952E-02
SIG-BA	.7859227E-03	SIG-AA	.2368634E-02	SIG-YE	.3258952E-02	SIG-PE	.7859227E-03
SIG-RE	.2368634E-02	SIG-U	.5588162E-02	SIG-V	.1696014E-01	SIG-W	.3835761E-02
MACH A	.2626137E+02	MACH R	.2616895E+02	PINF	.1569160E+01	TEMP	.1991897E+03
RHO	.2744339E-04	Q A	.7572806E+03	Q R	.7519603E+03	PSTAG	.1394101E+04
P	.9859333E+00	Q	.3119772E+00	R	.6215656E+00	X ACCEL	-.1891500E+00
Y ACCEL	.4145404E-01	Z ACCEL	-.2742717E+01	CXB	-.9198189E-01	CYB	.2015871E-01
CZB	-.1333758E+01	CL	.9555684E+00	CD	.9350183E+00	L/D	.1021978E+01
CL-ROLL	.1057543E-02	CM-PITCH	-.4579014E-02	CN-YAW	-.5556634E-02	PDOT	.1970106E+00
QDOT	-.5432169E-01	RDOT	-.1467814E+00				

METBET1 USING LAIRS(USE8.10/81).AMABETH.NE0105 DYNAM. DATA

TIME	.8000000E+03	VEL A	.7328216E+04	GAM A	-.2270531E+00	HDG A	.6550129E+02
ALTDE	.7615665E+05	LATD	.3353062E+02	LONG	.1859357E+03	SIGMAA	.7530957E+02
BETA A	.1648800E+00	ALPHAA	.4053284E+02	YAW E	.1050472E+03	PTCH E	.9433958E+01
ROLL E	.7868753E+02	U	.3011449E+04	V	.7045853E+04	W	.2904036E+02
VEL R	.7302984E+04	GAM R	-.2278376E+00	HDG R	.6564670E+02	SIGMAR	.7530944E+02
BETA R	.2025154E+00	ALPHAR	.4039238E+02	U-WIND	.2733873E+02	V-WIND	.1529671E+02
W-WIND	0.	SIG-VA	.9700547E-02	SIG-GA	.2121638E-04	SIG-HA	.7528334E-04
SIG-H	.6663187E+01	SIG-LA	.3476703E-04	SIG-LO	.3665596E-04	SIG-SA	.2307764E-02
SIG-BA	.1542227E-02	SIG-AA	.1713184E-02	SIG-YE	.2307764E-02	SIG-PE	.1542227E-02
SIG-RE	.1713184E-02	SIG-U	.5189689E-02	SIG-V	.1318048E-01	SIG-W	.2727119E-02
MACH A	.2578154E+02	MACH R	.2569277E+02	PINF	.1896232E+01	TEMP	.2011088E+03
RHO	.3284714E-04	Q A	.8819906E+03	Q R	.8759273E+03	PSTAG	.1623715E+04
P	-.2250735E+00	Q	-.7678884E-01	R	-.8869399E-01	X ACCEL	-.2201846E+00
Y ACCEL	-.1561608E-02	Z ACCEL	-.3042371E+01	CXB	-.9188774E-01	CYB	-.6516923E-03
CZB	-.1269647E+01	CL	.9052579E+00	CD	.8949606E+00	L/D	.1011506E+01
CL-ROLL	-.4434932E-03	CM-PITCH	-.7818218E-03	CN-YAW	-.9197818E-03	PDOT	-.1155864E+00
QDOT	-.1239156E-01	RDOT	-.3126265E-01				

TIME	.8500000E+03	VEL A	.7219103E+04	GAM A	-.1712232E+00	HDG A	.6851317E+02
ALTDE	.7533674E+05	LATD	.3478377E+02	LONG	.1895168E+03	SIGMAA	.7099483E+02
BETA A	-.9086161E-01	ALPHAA	.3945384E+02	YAW E	.1063969E+03	PTCH E	.1174009E+02
ROLL E	.7494577E+02	U	.2611833E+04	V	.7093660E+04	W	.2157359E+02
VEL R	.7197384E+04	GAM R	-.1717398E+00	HDG R	.6872233E+02	SIGMAR	.7099401E+02
BETA R	-.2225566E-01	ALPHAR	.3925624E+02	U-WIND	.3242192E+02	V-WIND	.1063019E+02
W-WIND	0.	SIG-VA	.7092036E-02	SIG-GA	.1937882E-04	SIG-HA	.5861998E-04
SIG-H	.6676084E+01	SIG-LA	.3719192E-04	SIG-LO	.3799440E-04	SIG-SA	.1854296E-02
SIG-BA	.1685533E-02	SIG-AA	.1450211E-02	SIG-YE	.1854296E-02	SIG-PE	.1685533E-02
SIG-RE	.1450211E-02	SIG-U	.4638737E-02	SIG-V	.9653780E-02	SIG-W	.2475876E-02
MACH A	.2531341E+02	MACH R	.2523725E+02	PINF	.2171534E+01	TEMP	.2024499E+03
RHO	.3736683E-04	Q A	.9736941E+03	Q R	.9678441E+03	PSTAG	.1792574E+04
P	.4294813E-01	Q	.4629252E-01	R	.4801152E-01	X ACCEL	-.2295132E+00
Y ACCEL	.1002727E-01	Z ACCEL	-.3101508E+01	CXB	-.8672634E-01	CYB	.3789013E-02
CZB	-.1171969E+01	CL	.8498097E+00	CD	.8116997E+00	L/D	.1046951E+01
CL-ROLL	-.2235869E-03	CM-PITCH	-.2252915E-03	CN-YAW	-.1208988E-02	PDOT	-.6910812E-01
QDOT	-.4004271E-02	RDOT	-.4271874E-01				

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TIME	.9000000E+03	VEL A	.7101467E+04	GAM A	-.1712652E+00	HDG A	.7170928E+02
ALTDE	.7464926E+05	LATD	.3585477E+02	LONG	.1931719E+03	SIGMAA	.6704802E+02
BETA A	-.1944434E+00	ALPHAA	.3962764E+02	YAW E	.1090576E+03	PTCH E	.1412300E+02
ROLL E	.7171584E+02	U	.2193435E+04	V	.7118383E+04	W	.2122725E+02
VEL R	.7084690E+04	GAM R	-.1716707E+00	HDG R	.7196467E+02	SIGMAR	.6704666E+02
BETA R	-.9447436E-01	ALPHAR	.3939262E+02	U-WIND	.3527119E+02	V-WIND	.6085235E+01
W-WIND	0.	SIG-VA	.4821767E-02	SIG-GA	.3072810E-04	SIG-HA	.4255815E-04
SIG-H	.6602177E+01	SIG-LA	.3928402E-04	SIG-LO	.3754779E-04	SIG-SA	.1778473E-02
SIG-BA	.1632668E-02	SIG-AA	.1454466E-02	SIG-YE	.1778473E-02	SIG-PE	.1632668E-02
SIG-RE	.1454466E-02	SIG-U	.3857850E-02	SIG-V	.6505514E-02	SIG-W	.3866767E-02
MACH A	.2483488E+02	MACH R	.2477621E+02	PINF	.2431368E+01	TEMP	.2035281E+03
RHO	.4161631E-04	Q A	.1049372E+04	Q R	.1044420E+04	PSTAG	.1931940E+04
P	-.1826703E+00	Q	-.4900212E-01	R	-.5031054E-01	X ACCEL	-.2433202E+00
Y ACCEL	-.6620328E-02	Z ACCEL	-.3349225E+01	CXB	-.8528471E-01	CYB	-.2320451E-02
CZB	-.1173916E+01	CL	.8497629E+00	CD	.8144055E+00	L/D	.1043415E+01
CL-ROLL	-.1043120E-03	CM-PITCH	.3844496E-03	CN-YAW	.5196669E-03	PDOT	-.2725826E-01
QDOT	.7557918E-02	RDOT	.1825767E-01				

TIME	.9500000E+03	VEL A	.6972595E+04	GAM A	-.1676558E+00	HDG A	.7506497E+02
ALTDE	.7390548E+05	LATD	.3673582E+02	LONG	.1968809E+03	SIGMAA	.6030545E+02
BETA A	-.8737689E-01	ALPHAA	.3936873E+02	YAW E	.1105430E+03	PTCH E	.1811551E+02
ROLL E	.6606039E+02	U	.1759929E+04	V	.7114013E+04	W	.2040280E+02
VEL R	.6962630E+04	GAM R	-.1678958E+00	HDG R	.7535858E+02	SIGMAR	.6030453E+02
BETA R	.5728893E-01	ALPHAR	.3911554E+02	U-WIND	.3683049E+02	V-WIND	.5839490E+00
W-WIND	0.	SIG-VA	.3184037E-02	SIG-GA	.4947720E-04	SIG-HA	.2861862E-04
SIG-H	.6424584E+01	SIG-LA	.4089817E-04	SIG-LO	.3548196E-04	SIG-SA	.1689825E-02
SIG-BA	.1593975E-02	SIG-AA	.1423922E-02	SIG-YE	.1689825E-02	SIG-PE	.1593975E-02
SIG-RE	.1423922E-02	SIG-U	.2973616E-02	SIG-V	.4038132E-02	SIG-W	.6121335E-02
MACH A	.2431837E+02	MACH R	.2428362E+02	PINF	.2745874E+01	TEMP	.2046313E+03
RHO	.4674615E-04	Q A	.1136330E+04	Q R	.1133085E+04	PSTAG	.2092085E+04
P	-.2573844E+00	Q	.2198735E-02	R	-.9329455E-01	X ACCEL	-.2680588E+00
Y ACCEL	-.1260763E-02	Z ACCEL	-.3716158E+01	CXB	-.8673724E-01	CYB	-.4079519E-03
CZB	-.1202457E+01	CL	.8745774E+00	CD	.8297840E+00	L/D	.1053982E+01
CL-ROLL	.4864056E-04	CM-PITCH	.1033960E-03	CN-YAW	-.2580257E-03	PDOT	.1364252E-01
QDOT	.2519795E-02	RDOT	-.9902697E-02				

TIME	.1000000E+04	VEL A	.6832162E+04	GAM A	-.1530413E+00	HDG A	.7858184E+02
ALTDE	.7321911E+05	LATD	.3742133E+02	LONG	.2006184E+03	SIGMAA	.5751254E+02
BETA A	-.1403423E-02	ALPHAA	.3933352E+02	YAW E	.1132043E+03	PTCH E	.1977688E+02
ROLL E	.6368581E+02	U	.1316207E+04	V	.7075710E+04	W	.1824919E+02
VEL R	.6829676E+04	GAM R	-.1530970E+00	HDG R	.7888847E+02	SIGMAR	.5751209E+02
BETA R	.1633382E+00	ALPHAR	.3907491E+02	U-WIND	.3633791E+02	V-WIND	-.4702921E+01
W-WIND	0.	SIG-VA	.2901751E-02	SIG-GA	.7228425E-04	SIG-HA	.1809989E-04
SIG-H	.6131567E+01	SIG-LA	.4194205E-04	SIG-LO	.3209535E-04	SIG-SA	.1686388E-02
SIG-BA	.1512020E-02	SIG-AA	.1473062E-02	SIG-YE	.1686388E-02	SIG-PE	.1512020E-02
SIG-RE	.1473062E-02	SIG-U	.2106243E-02	SIG-V	.2983009E-02	SIG-W	.8783484E-02
MACH A	.2377369E+02	MACH R	.2376504E+02	PINF	.3070443E+01	TEMP	.2055774E+03
RHO	.5203109E-04	Q A	.1214364E+04	Q R	.1213481E+04	PSTAG	.2235816E+04
P	-.1988239E+00	Q	-.4958381E-02	R	-.5912886E-01	X ACCEL	-.2855570E+00
Y ACCEL	-.8138945E-02	Z ACCEL	-.4039302E+01	CXB	-.8643671E-01	CYB	-.2463619E-02
CZB	-.1222677E+01	CL	.8909171E+00	CD	.8418299E+00	L/D	.1058310E+01
CL-ROLL	-.3478702E-05	CM-PITCH	-.6339307E-04	CN-YAW	.1231838E-03	PDOT	-.2058075E-03
QDOT	-.1245148E-02	RDOT	.5199979E-02				

TIME	.1050000E+04	VEL A	.6680967E+04	GAM A	-.1861477E+00	HDG A	.8222724E+02
ALTDE	.7244935E+05	LATD	.3790826E+02	LONG	.2043557E+03	SIGMAA	.5576823E+02
BETA A	-.1267342E+00	ALPHAA	.3979856E+02	YAW E	.1167944E+03	PTCH E	.2086545E+02
ROLL E	.6222441E+02	U	.8697250E+03	V	.7001390E+04	W	.2170569E+02
VEL R	.6686621E+04	GAM R	-.1859903E+00	HDG R	.8252636E+02	SIGMAR	.5576707E+02
BETA R	.4140540E-01	ALPHAR	.3955117E+02	U-WIND	.3383503E+02	V-WIND	-.1023310E+02
W-WIND	0.	SIG-VA	.3976743E-02	SIG-GA	.9803241E-04	SIG-HA	.1533497E-04
SIG-H	.5716211E+01	SIG-LA	.4234065E-04	SIG-LO	.2778194E-04	SIG-SA	.1608731E-02
SIG-BA	.1468985E-02	SIG-AA	.1444419E-02	SIG-YE	.1608731E-02	SIG-PE	.1468985E-02
SIG-RE	.1444419E-02	SIG-U	.1629115E-02	SIG-V	.3834418E-02	SIG-W	.1168166E-01
MACH A	.2319334E+02	MACH R	.2321297E+02	PINF	.3478365E+01	TEMP	.2065401E+03
RHO	.5866891E-04	Q A	.1309352E+04	Q R	.1311569E+04	PSTAG	.2410779E+04
P	-.2608368E+00	Q	-.1070348E-01	R	-.1126635E+00	X ACCEL	-.3003229E+00
Y ACCEL	-.4647900E-02	Z ACCEL	-.4346050E+01	CXB	-.8428671E-01	CYB	-.1304450E-02
CZB	-.1219735E+01	CL	.8831705E+00	CD	.8454977E+00	L/D	.1044557E+01
CL-ROLL	-.7813967E-06	CM-PITCH	.3011826E-03	CN-YAW	-.1419990E-03	PDOT	-.1518476E-02
QDOT	.7701648E-02	RDOT	-.6563887E-02				

TIME	.1100000E+04	VEL A	.6510536E+04	GAM A	-.2135006E+00	HDG A	.8601347E+02
ALTDE	.7137868E+05	LATD	.3819659E+02	LONG	.2080603E+03	SIGMAA	.5301508E+02
BETA A	-.1657273E+00	ALPHAA	.4028792E+02	YAW E	.1201351E+03	PTCH E	.2260697E+02
ROLL E	.5991213E+02	U	.4262114E+03	V	.6882477E+04	W	.2426008E+02
VEL R	.6526363E+04	GAM R	-.2129828E+00	HDG R	.8625554E+02	SIGMAR	.5301386E+02
BETA R	-.2050549E-01	ALPHAR	.4009424E+02	U-WIND	.2641083E+02	V-WIND	-.1764772E+02
W-WIND	0.	SIG-VA	.5492423E-02	SIG-GA	.1261664E-03	SIG-HA	.2152185E-04
SIG-H	.5179822E+01	SIG-LA	.4203807E-04	SIG-LO	.2308871E-04	SIG-SA	.1510174E-02
SIG-BA	.1434808E-02	SIG-AA	.1378144E-02	SIG-YE	.1510174E-02	SIG-PE	.1434808E-02
SIG-RE	.1378144E-02	SIG-U	.2096832E-02	SIG-V	.5390215E-02	SIG-W	.1471594E-01
MACH A	.2253992E+02	MACH R	.2259471E+02	PINF	.4133928E+01	TEMP	.2076736E+03
RHO	.6934561E-04	Q A	.1469678E+04	Q R	.1476833E+04	PSTAG	.2706077E+04
P	.1111986E+00	Q	-.3150628E-02	R	.1581400E+00	X ACCEL	-.3228211E+00
Y ACCEL	.2767010E-02	Z ACCEL	-.4894043E+01	CXB	-.8068789E-01	CYB	.6916034E-03
CZB	-.1223247E+01	CL	.8809235E+00	CD	.8525361E+00	L/D	.1033298E+01
CL-ROLL	-.5582223E-04	CM-PITCH	.2367941E-03	CN-YAW	-.8587325E-04	PDOT	-.2394482E-01
QDOT	.6689902E-02	RDOT	-.4958012E-02				

TIME	.1150000E+04	VEL A	.6322661E+04	GAM A	-.2627027E+00	HDG A	.8995857E+02
ALTDE	.7004676E+05	LATD	.3828894E+02	LONG	.2116957E+03	SIGMAA	.5066537E+02
BETA A	-.1235310E+00	ALPHAA	.4010877E+02	YAW E	.1230347E+03	PTCH E	.2380121E+02
ROLL E	.5770752E+02	U	-.9211252E+01	V	.6716988E+04	W	.2898948E+02
VEL R	.6347514E+04	GAM R	-.2616742E+00	HDG R	.9008315E+02	SIGMAR	.5066466E+02
BETA R	-.4536642E-01	ALPHAR	.4001177E+02	U-WIND	.1378276E+02	V-WIND	-.2484743E+02
W-WIND	0.	SIG-VA	.7106497E-02	SIG-GA	.1575487E-03	SIG-HA	.3102095E-04
SIG-H	.4535164E+01	SIG-LA	.4103444E-04	SIG-LO	.1882717E-04	SIG-SA	.1440741E-02
SIG-BA	.1386227E-02	SIG-AA	.1338031E-02	SIG-YE	.1440741E-02	SIG-PE	.1386227E-02
SIG-RE	.1338031E-02	SIG-U	.3216996E-02	SIG-V	.7000440E-02	SIG-W	.1793309E-01
MACH A	.2183647E+02	MACH R	.2192230E+02	PINF	.5119104E+01	TEMP	.2086831E+03
RHO	.8545626E-04	Q A	.1708101E+04	Q R	.1721555E+04	PSTAG	.3145223E+04
P	.3629922E-01	Q	-.1503355E-01	R	.1129734E+00	X ACCEL	-.3546313E+00
Y ACCEL	.6809132E-02	Z ACCEL	-.5500508E+01	CXB	-.7623389E-01	CYB	.1463736E-02
CZB	-.1182425E+01	CL	.8552330E+00	CD	.8200720E+00	L/D	.1042876E+01
CL-ROLL	.4203238E-04	CM-PITCH	.9810349E-03	CN-YAW	.9130589E-04	PDOT	.2126593E-01
QDOT	.3091029E-01	RDOT	.5947477E-02				

TIME	.1200000E+04	VEL A	.6112826E+04	GAM A	-.3272837E+00	HDG A	.9409298E+02
ALTDE	.6838906E+05	LATD	.3818928E+02	LONG	.2152238E+03	SIGMAA	.5144557E+02
BETA A	-.2629546E-01	ALPHAA	.4021967E+02	YAW E	.1275029E+03	PTCH E	.2344119E+02
ROLL E	.5846777E+02	U	-.4360802E+03	V	.6498609E+04	W	.3491736E+02
VEL R	.6144247E+04	GAM R	-.3256100E+00	HDG R	.9406998E+02	SIGMAR	.5144572E+02
BETA R	-.4193633E-01	ALPHAR	.4023661E+02	U-WIND	-.2169153E+00	V-WIND	-.3151688E+02
W-WIND	0.	SIG-VA	.8817382E-02	SIG-GA	.1942213E-03	SIG-HA	.4123190E-04
SIG-H	.3814678E+01	SIG-LA	.3936551E-04	SIG-LO	.1624128E-04	SIG-SA	.1385059E-02
SIG-BA	.1337620E-02	SIG-AA	.1296157E-02	SIG-YE	.1385059E-02	SIG-PE	.1337620E-02
SIG-RE	.1296157E-02	SIG-U	.4576795E-02	SIG-V	.8605697E-02	SIG-W	.2149735E-01
MACH A	.2108630E+02	MACH R	.2119469E+02	PINF	.6673384E+01	TEMP	.2091875E+03
RHO	.1111342E-03	Q A	.2076355E+04	Q R	.2097756E+04	PSTAG	.3823518E+04
P	.1661711E+00	Q	-.2320562E-01	R	.1630382E+00	X ACCEL	-.4104676E+00
Y ACCEL	.5801163E-02	Z ACCEL	-.6447685E+01	CXB	-.7255094E-01	CYB	.1025367E-02
CZB	-.1139641E+01	CL	.8233529E+00	CD	.7912866E+00	L/D	.1040524E+01
CL-ROLL	-.9414983E-04	CM-PITCH	.2070538E-03	CN-YAW	-.6684666E-03	PDOT	-.6420673E-01
QDOT	.8342740E-02	RDOT	-.4987096E-01				

TIME	.1250000E+04	VEL A	.5876087E+04	GAM A	-.4362129E+00	HDG A	.9838785E+02
ALTDE	.6629312E+05	LATD	.3790086E+02	LONG	.2186018E+03	SIGMAA	.5198937E+02
BETA A	-.1380888E-01	ALPHAA	.4030571E+02	YAW E	.1320451E+03	PTCH E	.2310283E+02
ROLL E	.5893325E+02	U	-.8567894E+03	V	.6213294E+04	W	.4473629E+02
VEL R	.5904668E+04	GAM R	-.4341015E+00	HDG R	.9834353E+02	SIGMAR	.5198972E+02
BETA R	-.4276358E-01	ALPHAR	.4033932E+02	U-WIND	-.3492965E+00	V-WIND	-.2893998E+02
W-WIND	0.	SIG-VA	.1073090E-01	SIG-GA	.2393401E-03	SIG-HA	.5227148E-04
SIG-H	.3109841E+01	SIG-LA	.3708068E-04	SIG-LO	.1670278E-04	SIG-SA	.1270785E-02
SIG-BA	.1310930E-02	SIG-AA	.1188722E-02	SIG-YE	.1270785E-02	SIG-PE	.1310930E-02
SIG-RE	.1188722E-02	SIG-U	.6139596E-02	SIG-V	.1029562E-01	SIG-W	.2563690E-01
MACH A	.1975629E+02	MACH R	.1985238E+02	PINF	.9264618E+01	TEMP	.2202003E+03
RHO	.1465706E-03	Q A	.2530423E+04	Q R	.2555098E+04	PSTAG	.4660185E+04
P	-.6031956E-01	Q	.5220983E-02	R	.5201864E-01	X ACCEL	-.4744076E+00
Y ACCEL	.1793671E-02	Z ACCEL	-.7709076E+01	CXB	-.6876311E-01	CYB	.2599840E-03
CZB	-.1117394E+01	CL	.8076483E+00	CD	.7752427E+00	L/D	.1041801E+01
CL-ROLL	.9015854E-04	CM-PITCH	-.1720290E-03	CN-YAW	.3707280E-03	PDOT	.7045979E-01
QDOT	-.8061862E-02	RDOT	.3438302E-01				

TIME	.1300000E+04	VEL A	.5579710E+04	GAM A	-.4343966E+00	HDG A	.1031734E+03
ALTDE	.6388714E+05	LATD	.3742757E+02	LONG	.2217789E+03	SIGMAA	.5481728E+02
BETA A	-.1151841E+00	ALPHAA	.3985369E+02	YAW E	.1374270E+03	PTCH E	.2123196E+02
ROLL E	.6125794E+02	U	-.1262478E+04	V	.5840938E+04	W	.4230301E+02
VEL R	.5611449E+04	GAM R	-.4319396E+00	HDG R	.1030022E+03	SIGMAR	.5481897E+02
BETA R	-.2158199E+00	ALPHAR	.3999219E+02	U-WIND	-.9095751E+01	V-WIND	-.3470075E+02
W-WIND	0.	SIG-VA	.1284380E-01	SIG-GA	.2945458E-03	SIG-HA	.6276406E-04
SIG-H	.2686259E+01	SIG-LA	.3426580E-04	SIG-LO	.2034632E-04	SIG-SA	.1180095E-02
SIG-BA	.1282403E-02	SIG-AA	.1089547E-02	SIG-YE	.1180095E-02	SIG-PE	.1282403E-02
SIG-RE	.1089547E-02	SIG-U	.7748335E-02	SIG-V	.1207223E-01	SIG-W	.3030868E-01
MACH A	.1822567E+02	MACH R	.1832934E+02	PINF	.1321197E+02	TEMP	.2332966E+03
RHO	.1972860E-03	Q A	.3071068E+04	Q R	.3106105E+04	PSTAG	.5656776E+04
P	.1555453E+00	Q	.1489327E-01	R	.2529343E+00	X ACCEL	-.5811925E+00
Y ACCEL	-.3788036E-01	Z ACCEL	-.9470512E+01	CXB	-.6936269E-01	CYB	-.4520849E-02
CZB	-.1130263E+01	CL	.8232341E+00	CD	.7775540E+00	L/D	.1058748E+01
CL-ROLL	.2563257E-04	CM-PITCH	-.3523227E-03	CN-YAW	.1215958E-02	PDOT	.4676366E-01
QDOT	-.1927101E-01	RDOT	.1313503E+00				

TIME	.1350000E+04	VEL A	.5234219E+04	GAM A	-.5635488E+00	HDG A	.1035687E+03
ALTDE	.6244388E+05	LATD	.3684577E+02	LONG	.2247223E+03	SIGMAA	-.6732679E+02
BETA A	-.2345059E+00	ALPHAA	.4232854E+02	YAW E	.6367307E+02	PTCH E	.1477828E+02
ROLL E	-.7260636E+02	U	-.1216700E+04	V	.5495959E+04	W	.5148181E+02
VEL R	.5262499E+04	GAM R	-.5605203E+00	HDG R	.1033685E+03	SIGMAR	-.6732570E+02
BETA R	-.3089013E+00	ALPHAR	.4214261E+02	U-WIND	-.1125046E+02	V-WIND	-.3177588E+02
W-WIND	0.	SIG-VA	.9787953E-02	SIG-GA	.2507701E-03	SIG-HA	.7224362E-04
SIG-H	.2910229E+01	SIG-LA	.3126171E-04	SIG-LO	.2517017E-04	SIG-SA	.3285461E-03
SIG-BA	.5643257E-03	SIG-AA	.1856425E-03	SIG-YE	.3285461E-03	SIG-PE	.5643257E-03
SIG-RE	.1856425E-03	SIG-U	.8538799E-02	SIG-V	.8526971E-02	SIG-W	.2452836E-01
MACH A	.1686189E+02	MACH R	.1695300E+02	PINF	.1620640E+02	TEMP	.2398519E+03
RHO	.2353859E-03	Q A	.3224438E+04	Q R	.3259375E+04	PSTAG	.5940353E+04
P	.8392389E+00	Q	.4274331E-01	R	.6806642E+00	X ACCEL	-.6051860E+00
Y ACCEL	-.2820451E-01	Z ACCEL	-.1100239E+02	CXB	-.6876437E-01	CYB	-.3204743E-02
CZB	-.1250149E+01	CL	.8779249E+00	CD	.8926633E+00	L/D	.9834894E+00
CL-ROLL	.1175130E-03	CM-PITCH	.8105596E-04	CN-YAW	.1839941E-02	PDOT	.1457083E+00
QDOT	.1379228E-01	RDOT	.2098705E+00				

TIME	.1400000E+04	VEL A	.4821749E+04	GAM A	-.7155977E+00	HDG A	.1013273E+03
ALTDE	.5930049E+05	LATD	.3636111E+02	LONG	.2274571E+03	SIGMAA	-.5729748E+02
BETA A	-.2289838E-03	ALPHAA	.4093805E+02	YAW E	.6535878E+02	PTCH E	.2015452E+02
ROLL E	-.6367655E+02	U	-.9435573E+03	V	.5132115E+04	W	.6021984E+02
VEL R	.4846751E+04	GAM R	-.7119061E+00	HDG R	.1012268E+03	SIGMAR	-.5729627E+02
BETA R	-.5143586E-01	ALPHAR	.4085146E+02	U-WIND	-.3428219E+01	V-WIND	-.2617978E+02
W-WIND	0.	SIG-VA	.4970815E-02	SIG-GA	.1603333E-03	SIG-HA	.9875513E-04
SIG-H	.3330602E+01	SIG-LA	.2795554E-04	SIG-LO	.2750633E-04	SIG-SA	.1008494E-02
SIG-BA	.6194824E-03	SIG-AA	.1311871E-02	SIG-YE	.1008494E-02	SIG-PE	.6194824E-03
SIG-RE	.1311871E-02	SIG-U	.8818922E-02	SIG-V	.3615551E-02	SIG-W	.1471493E-01
MACH A	.1518395E+02	MACH R	.1526268E+02	PINF	.2488254E+02	TEMP	.2510105E+03
RHO	.3453346E-03	Q A	.4014387E+04	Q R	.4056126E+04	PSTAG	.7397836E+04
P	.1850162E+00	Q	.3528937E-01	R	.4128582E-01	X ACCEL	-.7383940E+00
Y ACCEL	-.8964872E-03	Z ACCEL	-.1295765E+02	CXB	-.6732811E-01	CYB	-.8174333E-04
CZB	-.1181502E+01	CL	.8484124E+00	CD	.8250314E+00	L/D	.1028339E+01
CL-ROLL	.6180457E-04	CM-PITCH	.1180837E-03	CN-YAW	.2302977E-03	PDOT	.7599356E-01
QDOT	.8831918E-02	RDOT	.3393768E-01				

TIME	.1450000E+04	VEL A	.4327377E+04	GAM A	-.6004734E+00	HDG A	.9792056E+02
ALTDE	.5637164E+05	LATD	.3601684E+02	LONG	.2299606E+03	SIGMAA	-.4730244E+02
BETA A	.3835229E-01	ALPHAA	.3961787E+02	YAW E	.6673347E+02	PTCH E	.2508375E+02
ROLL E	-.5423509E+02	U	-.5910293E+03	V	.4705786E+04	W	.4535111E+02
VEL R	.4366245E+04	GAM R	-.5951278E+00	HDG R	.9778005E+02	SIGMAR	-.4730099E+02
BETA R	-.5299749E-01	ALPHAR	.3951098E+02	U-WIND	-.5250042E+01	V-WIND	-.3996176E+02
W-WIND	0.	SIG-VA	.4255726E-02	SIG-GA	.7583526E-04	SIG-HA	.1066461E-03
SIG-H	.3500998E+01	SIG-LA	.2443432E-04	SIG-LO	.2685252E-04	SIG-SA	.1081905E-02
SIG-BA	.5982291E-03	SIG-AA	.1258110E-02	SIG-YE	.1081905E-02	SIG-PE	.5982291E-03
SIG-RE	.1258110E-02	SIG-U	.8954613E-02	SIG-V	.4289463E-02	SIG-W	.6451175E-02
MACH A	.1344387E+02	MACH R	.1356463E+02	PINF	.3659662E+02	TEMP	.2579009E+03
RHO	.4943396E-03	Q A	.4628548E+04	Q R	.4712068E+04	PSTAG	.8533276E+04
P	.1838604E+00	Q	.4029643E-01	R	-.2348816E-01	X ACCEL	-.9271003E+00
Y ACCEL	.5404610E-01	Z ACCEL	-.1475465E+02	CXB	-.7325381E-01	CYB	.4270393E-02
CZB	-.1165822E+01	CL	.8513386E+00	CD	.7998318E+00	L/D	.1064397E+01
CL-ROLL	.1788132E-04	CM-PITCH	.1288244E-03	CN-YAW	-.7260246E-03	PDOT	.1188887E-02
QDOT	.1089113E-01	RDOT	-.1173282E+00				

TIME	.1500000E+04	VEL A	.3828938E+04	GAM A	-.6825464E+00	HDG A	.9350957E+02
ALTDE	.5454531E+05	LATD	.3583286E+02	LONG	.2322097E+03	SIGMAA	-.5635574E+02
BETA A	.3150037E+00	ALPHAA	.3984063E+02	YAW E	.5875161E+02	PTCH E	.2001457E+02
ROLL E	-.6235718E+02	U	-.2230578E+03	V	.4242384E+04	W	.4561184E+02
VEL R	.3868352E+04	GAM R	-.6755918E+00	HDG R	.9330587E+02	SIGMAR	-.5635253E+02
BETA R	.2079395E+00	ALPHAR	.3966721E+02	U-WIND	-.1131458E+02	V-WIND	-.4015965E+02
W-WIND	0.	SIG-VA	.8501946E-02	SIG-GA	.1072148E-03	SIG-HA	.1277062E-03
SIG-H	.3307587E+01	SIG-LA	.2066376E-04	SIG-LO	.2347193E-04	SIG-SA	.1163366E-02
SIG-BA	.5946880E-03	SIG-AA	.1251518E-02	SIG-YE	.1163366E-02	SIG-PE	.5946880E-03
SIG-RE	.1251518E-02	SIG-U	.9456094E-02	SIG-V	.8767869E-02	SIG-W	.8177858E-02
MACH A	.1133225E+02	MACH R	.1195405E+02	PINF	.4635681E+02	TEMP	.2606599E+03
RHO	.6195503E-03	Q A	.4541540E+04	Q R	.4635518E+04	PSTAG	.8377687E+04
P	.5375161E+00	Q	-.3675767E-02	R	.3042416E+00	X ACCEL	-.8503058E+00
Y ACCEL	.1777398E-03	Z ACCEL	-.1489310E+02	CXB	-.6843562E-01	CYB	.1430513E-04
CZB	-.1198649E+01	CL	.8765144E+00	CD	.8204665E+00	L/D	.1068312E+01
CL-ROLL	.2073657E-04	CM-PITCH	.1603289E-03	CN-YAW	.1752428E-04	PDOT	.2706468E-01
QDOT	.1591823E-01	RDOT	.3439023E-02				

TIME	.1550000E+04	VEL A	.3341595E+04	GAM A	-.1160206E+01	HDG A	.8768572E+02
ALTDE	.5162679E+05	LATD	.3581575E+02	LONG	.2341942E+03	SIGMAA	-.5325477E+02
BETA A	.2702784E+00	ALPHAA	.3805167E+02	YAW E	.5570931E+02	PTCH E	.2047224E+02
ROLL E	-.5876389E+02	U	.1431503E+03	V	.3746947E+04	W	.6766069E+02
VEL R	.3370023E+04	GAM R	-.1150417E+01	HDG R	.8756499E+02	SIGMAR	-.5325191E+02
BETA R	.2059085E+00	ALPHAR	.3794910E+02	U-WIND	-.8241388E+01	V-WIND	-.2811641E+02
W-WIND	0.	SIG-VA	.1289604E-01	SIG-GA	.2169615E-03	SIG-HA	.1609266E-03
SIG-H	.2775549E+01	SIG-LA	.1637821E-04	SIG-LO	.1781589E-04	SIG-SA	.9838822E-03
SIG-BA	.7181083E-03	SIG-AA	.9950657E-03	SIG-YE	.9838822E-03	SIG-PE	.7181083E-03
SIG-RE	.9950657E-03	SIG-U	.1074950E-01	SIG-V	.1301106E-01	SIG-W	.1461160E-01
MACH A	.1028241E+02	MACH R	.1036988E+02	PINF	.6740175E+02	TEMP	.2628877E+03
RHO	.8931783E-03	Q A	.4986726E+04	Q R	.5071935E+04	PSTAG	.9206532E+04
P	-.8611572E-01	Q	.5805843E-01	R	-.2300585E+00	X ACCEL	-.8990879E+00
Y ACCEL	-.1046335E-01	Z ACCEL	-.1542859E+02	CXB	-.6584200E-01	CYB	-.7662520E-03
CZB	-.1129867E+01	CL	.8491362E+00	CD	.7482656E+00	L/D	.1134806E+01
CL-ROLL	-.3011413E-05	CM-PITCH	.9968259E-04	CN-YAW	-.2838227E-04	PDOT	-.5091932E-02
QDOT	.9482984E-02	RDOT	-.4978859E-02				

TIME	.1600000E+04	VEL A	.2856618E+04	GAM A	-.1117846E+01	HDG A	.8058119E+02
ALTDE	.4822093E+05	LATD	.3595654E+02	LONG	.2358999E+03	SIGMAA	-.3528266E+02
BETA A	.2867620E+00	ALPHAA	.3395810E+02	YAW E	.5932499E+02	PTCH E	.2593273E+02
ROLL E	-.3994444E+02	U	.4663682E+03	V	.3226009E+04	W	.5572932E+02
VEL R	.2884731E+04	GAM R	-.1106950E+01	HDG R	.8069453E+02	SIGMAR	-.3528519E+02
BETA R	.3855546E+00	ALPHAR	.3401466E+02	U-WIND	.1027687E+01	V-WIND	-.2866762E+02
W-WIND	0.	SIG-VA	.1601393E-01	SIG-GA	.3387630E-03	SIG-HA	.2023143E-03
SIG-H	.2023038E+01	SIG-LA	.1186290E-04	SIG-LO	.1107729E-04	SIG-SA	.9053176E-03
SIG-BA	.7563698E-03	SIG-AA	.8261622E-03	SIG-YE	.9053176E-03	SIG-PE	.7563698E-03
SIG-RE	.8261622E-03	SIG-U	.1191566E-01	SIG-V	.1615174E-01	SIG-W	.1979828E-01
MACH A	.8795871E+01	MACH R	.8882435E+01	PINF	.1041977E+03	TEMP	.2625421E+03
RHO	.1382600E-02	Q A	.5641189E+04	Q R	.5752771E+04	PSTAG	.1042773E+05
P	.3955697E+01	Q	.5796060E-02	R	.2513099E+01	X ACCEL	-.1003018E+01
Y ACCEL	-.4104694E-01	Z ACCEL	-.1482831E+02	CXB	-.6486149E-01	CYB	-.2654355E-02
CZB	-.9588923E+00	CL	.7591189E+00	CD	.5894234E+00	L/D	.1287901E+01
CL-ROLL	-.1320997E-03	CM-PITCH	-.1953921E-02	CN-YAW	.4107854E-03	PDOT	-.1947696E+00
QDOT	-.4872962E-01	RDOT	.7595788E-01				

TIME	.1650000E+04	VEL A	.2434279E+04	GAM A	-.1970409E+01	HDG A	.8918781E+02
ALTDE	.4584430E+05	LATD	.3609019E+02	LONG	.2373582E+03	SIGMAA	.4454736E+02
BETA A	.9471714E-02	ALPHAA	.3311180E+02	YAW E	.1134372E+03	PTCH E	.2112360E+02
ROLL E	.4872852E+02	U	.4502340E+02	V	.2834051E+04	W	.8369866E+02
VEL R	.2456899E+04	GAM R	-.1952261E+01	HDG R	.8894937E+02	SIGMAR	.4455574E+02
BETA R	-.1730795E+00	ALPHAR	.3326605E+02	U-WIND	-.1053814E+02	V-WIND	-.2246496E+02
W-WIND	0.	SIG-VA	.9715393E-02	SIG-GA	.2591315E-03	SIG-HA	.1723077E-03
SIG-H	.1421810E+01	SIG-LA	.8407074E-05	SIG-LO	.7666687E-05	SIG-SA	.6241034E-03
SIG-BA	.5239175E-03	SIG-AA	.5371152E-03	SIG-YE	.6241034E-03	SIG-PE	.5239175E-03
SIG-RE	.5371152E-03	SIG-U	.8708786E-02	SIG-V	.9788298E-02	SIG-W	.1298211E-01
MACH A	.7521494E+01	MACH R	.7591386E+01	PINF	.1414532E+03	TEMP	.2607262E+03
RHO	.1890016E-02	Q A	.5599845E+04	Q R	.5704400E+04	PSTAG	.1036892E+05
P	-.7772948E+00	Q	.1521804E-01	R	-.2328547E+00	X ACCEL	-.9795593E+00
Y ACCEL	-.4194397E-01	Z ACCEL	-.1397008E+02	CXB	-.6376400E-01	CYB	-.2730325E-02
CZB	-.9093765E+00	CL	.7268668E+00	CD	.5501783E+00	L/D	.1321148E+01
CL-ROLL	.1184370E-03	CM-PITCH	-.1279826E-03	CN-YAW	.6008090E-03	PDOT	.2090522E+00
QDOT	-.1054520E-01	RDOT	.1224502E+00				

TIME	.1700000E+04	VEL A	.2052220E+04	GAM A	-.2357064E+01	HDG A	.1000689E+03
ALTDE	.4178574E+05	LATD	.3601763E+02	LONG	.2385976E+03	SIGMAA	.4563637E+02
BETA A	-.2266630E-02	ALPHAA	.2829927E+02	YAW E	.1208459E+03	PTCH E	.1715528E+02
ROLL E	.4838035E+02	U	-.3631910E+03	V	.2415121E+04	W	.8440151E+02
VEL R	.2069884E+04	GAM R	-.2336939E+01	HDG R	.1001142E+03	SIGMAR	.4563452E+02
BETA R	.1499457E-01	ALPHAR	.2825284E+02	U-WIND	.4700704E+01	V-WIND	-.1711962E+02
W-WIND	O.	SIG-VA	.3923034E-02	SIG-GA	.1616051E-03	SIG-HA	.1407831E-03
SIG-H	.1137884E+01	SIG-LA	.6212247E-05	SIG-LO	.7594411E-05	SIG-SA	.1074940E-02
SIG-BA	.3303088E-03	SIG-AA	.9415691E-03	SIG-YE	.1074940E-02	SIG-PE	.3303088E-03
SIG-RE	.9416691E-03	SIG-U	.6053462E-02	SIG-V	.3869658E-02	SIG-W	.6962101E-02
MACH A	.6408190E+01	MACH R	.6463346E+01	PINF	.2402352E+03	TEMP	.2552874E+03
RHO	.3278268E-02	Q A	.6903387E+04	Q R	.7022735E+04	PSTAG	.1281322E+05
P	-.1146302E+00	Q	.8088352E-01	R	.1054024E+00	X ACCEL	-.1241695E+01
Y ACCEL	.7806279E-02	Z ACCEL	-.1421344E+02	CXB	-.6548283E-01	CYB	.4116770E-03
CZB	-.7495689E+00	CL	.6289391E+00	CD	.4130099E+00	L/D	.1522819E+01
CL-ROLL	.4009571E-05	CM-PITCH	-.2263975E-03	CN-YAW	-.7977707E-05	PDOT	.7383655E-02
QDOT	-.2895726E-01	RDOT	-.1616991E-02				

TIME	.1750000E+04	VEL A	.1697893E+04	GAM A	-.2821447E+01	HDG A	.1138470E+03
ALTDE	.3759216E+05	LATD	.3577798E+02	LONG	.2395932E+03	SIGMAA	.4524455E+02
BETA A	.1112239E+00	ALPHAA	.2414230E+02	YAW E	.1311968E+03	PTCH E	.1412050E+02
ROLL E	.4700832E+02	U	-.6924363E+03	V	.1953267E+04	W	.8357648E+02
VEL R	.1720941E+04	GAM R	-.2783630E+01	HDG R	.1137555E+03	SIGMAR	.4524898E+02
BETA R	.2004807E-01	ALPHAR	.2418056E+02	U-WIND	.6818748E+01	V-WIND	-.2221306E+02
W-WIND	O.	SIG-VA	.4143597E-02	SIG-GA	.1268887E-03	SIG-HA	.1347690E-03
SIG-H	.9498468E+00	SIG-LA	.4778072E-05	SIG-LO	.6658071E-05	SIG-SA	.1018315E-02
SIG-BA	.3983447E-03	SIG-AA	.7863407E-03	SIG-YE	.1018315E-02	SIG-PE	.3983447E-03
SIG-RE	.7863407E-03	SIG-U	.4741980E-02	SIG-V	.4329533E-02	SIG-W	.4552895E-02
MACH A	.5384469E+01	MACH R	.5457560E+01	PINF	.4216554E+03	TEMP	.2475069E+03
RHO	.5934820E-02	Q A	.8554570E+04	Q R	.8788395E+04	PSTAG	.1593580E+05
P	-.6043086E+00	Q	.9452486E-01	R	.1910519E-01	X ACCEL	-.1565037E+01
Y ACCEL	-.1441910E-01	Z ACCEL	-.1410968E+02	CXB	-.6651881E-01	CYB	-.6128552E-03
CZB	-.5997042E+00	CL	.5200431E+00	CD	.3059822E+00	L/D	.1699586E+01
CL-ROLL	-.3826381E-04	CM-PITCH	.4041957E-04	CN-YAW	-.1451655E-03	PDOT	-.1004517E+00
QDOT	.6025148E-02	RDOT	-.4484389E-01				

TIME	.1800000E+04	VEL A	.1374665E+04	GAM A	-.1924123E+01	HDG A	.1280713E+03		
ALTDE	.3379497E+05	LATD	.3541885E+02	LONG	.2403208E+03	SIGMAA	.6201605E+01		
BETA A	-.1346151E+00	ALPHAA	.2052351E+02	YAW E	.1304919E+03	PTCH E	.1846113E+02		
ROLL E	.6530975E+01	U	-.8619027E+03	V	.1474601E+04	W	.4615571E+02		
VEL R	.1392818E+04	GAM R	-.1899036E+01	HDG R	.1282548E+03	SIGMAR	.6195451E+01		
BETA R	.4495464E-01	ALPHAR	.2047877E+02	U-WIND	.1470471E+02	V-WIND	-.1154480E+02		
W-WIND	0.	SIG-VA	.7568105E-02	SIG-GA	.2103330E-03	SIG-HA	.1371081E-03		
SIG-H	.7778422E+00	SIG-LA	.4068424E-05	SIG-LO	.4956532E-05	SIG-SA	.8519877E-03		
SIG-BA	.6372806E-03	SIG-AA	.5459437E-03	SIG-YE	.8519877E-03	SIG-PE	.6372806E-03		
SIG-RE	.5459437E-03	SIG-U	.4247379E-02	SIG-V	.7731430E-02	SIG-W	.6042987E-02		
MACH A	.4431713E+01	MACH R	.4490236E+01	PINF	.7140580E+03	TEMP	.2394986E+03		
RHO	.1038647E-01	Q A	.9813674E+04	Q R	.1007457E+05	PSTAG	.1838952E+05		
P	-.4218930E+01	Q	.6003871E-01	R	-.1368876E+01	X ACCEL	-.2109375E+01		
Y ACCEL	-.5369127E-01	Z ACCEL	-.1389039E+02	CXB	-.7806253E-01	CYB	-.1986975E-02		
CZB	-.5140475E+00	CL	.4540520E+00	CD	.2533286E+00	L/D	.1792345E+01		
CL-ROLL	.2553850E-03	CM-PITCH	-.3889280E-03	CN-YAW	.2528570E-03	PDOT	.7228396E+00		
QDOT	.1483433E-01	RDOT	.1072142E+00						
TIME	.1850000E+04	VEL A	.1082516E+04	GAM A	-.4690574E+01	HDG A	.1107772E+03		
ALTDE	.3101192E+05	LATD	.3512934E+02	LONG	.2408943E+03	SIGMAA	-.3765270E+02		
BETA A	.1627923E+00	ALPHAA	.1956900E+02	YAW E	.9863238E+02	PTCH E	.1069693E+02		
ROLL E	-.3826909E+02	U	-.3977359E+03	V	.1394961E+04	W	.8852224E+02		
VEL R	.1091228E+04	GAM R	-.4653043E+01	HDG R	.1114500E+03	SIGMAR	-.3771042E+02		
BETA R	.7165068E+00	ALPHAR	.1994926E+02	U-WIND	.1501656E+02	V-WIND	-.3571428E+01		
W-WIND	0.	SIG-VA	.1883047E-02	SIG-GA	.1405729E-03	SIG-HA	.1332088E-03		
SIG-H	.6642410E+00	SIG-LA	.3841431E-05	SIG-LO	.4865148E-05	SIG-SA	.9259365E-03		
SIG-BA	.3910145E-03	SIG-AA	.5585352E-03	SIG-YE	.9259365E-03	SIG-PE	.3910145E-03		
SIG-RE	.5585352E-03	SIG-U	.2799085E-02	SIG-V	.2528642E-02	SIG-W	.3397906E-02		
MACH A	.3534030E+01	MACH R	.3562471E+01	PINF	.1063070E+04	TEMP	.2335503E+03		
RHO	.1585692E-01	Q A	.9290889E+04	Q R	.9441036E+04	PSTAG	.1759383E+05		
P	.1266466E+00	Q	.1524607E+00	R	-.1569878E+00	X ACCEL	-.2232324E+01		
Y ACCEL	-.4099091E-01	Z ACCEL	-.1338588E+02	CXB	-.8718798E-01	CYB	-.1600984E-02		
CZB	-.5228128E+00	CL	.4634116E+00	CD	.2572638E+00	L/D	.1801309E+01		
CL-ROLL	.1796133E-03	CM-PITCH	-.5352696E-03	CN-YAW	-.2264624E-03	PDOT	.4564756E+00		
QDOT	-.9183951E-01	RDOT	-.6300969E-01						

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*   METBET1 USING LAIRS(USE8,10/81   ),AMABETH,NE0105 DYNAM. DATA   PAGE   20   *
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TIME	.1855000E+04	VEL A	.1055658E+04	GAM A	-.4684979E+01	HDG A	.1091531E+03
ALTDE	.3056949E+05	LATD	.3511246E+02	LONG	.2409491E+03	SIGMAA	-.3713324E+02
BETA A	.2982210E+00	ALPHAA	.1894489E+02	YAW E	.9743209E+02	PTCH E	.1023875E+02
ROLL E	-.3765818E+02	U	-.3552657E+03	V	.1379950E+04	W	.8622318E+02
VEL R	.1062132E+04	GAM R	-.4655356E+01	HDG R	.1096085E+03	SIGMAR	-.3717246E+02
BETA R	.6772474E+00	ALPHAR	.1919619E+02	U-WIND	.1006838E+02	V-WIND	-.3344776E+01
W-WIND	0.	SIG-VA	.1775782E-02	SIG-GA	.1748678E-03	SIG-HA	.1599177E-03
SIG-H	.6533919E+00	SIG-LA	.3822928E-05	SIG-LO	.4843947E-05	SIG-SA	.1035180E-02
SIG-BA	.8261833E-04	SIG-AA	.6402691E-03	SIG-YE	.1035180E-02	SIG-PE	.8261833E-04
SIG-RE	.6402691E-03	SIG-U	.2731332E-02	SIG-V	.2258409E-02	SIG-W	.3309464E-02
MACH A	.3453201E+01	MACH R	.3474381E+01	PINF	.1133585E+04	TEMP	.2326241E+03
RHO	.1697605E-01	Q A	.9459161E+04	Q R	.9575552E+04	PSTAG	.1793704E+05
P	.1175945E-01	Q	.1910519E-02	R	-.3349094E+00	X ACCEL	-.2322354E+01
Y ACCEL	-.2907261E-01	Z ACCEL	-.1307899E+02	CXB	-.8907856E-01	CYB	-.1115139E-02
CZB	-.5016712E+00	CL	.4455762E+00	CD	.2471251E+00	L/D	.1803039E+01
CL-ROLL	-.1666617E-03	CM-PITCH	-.9346881E-04	CN-YAW	-.3205637E-03	PDOT	-.4641659E+00
QDOT	-.1628697E-01	RDOT	-.1166537E+00				

TIME	.1860000E+04	VEL A	.1029572E+04	GAM A	-.4748290E+01	HDG A	.1073308E+03
ALTDE	.3013611E+05	LATD	.3509745E+02	LONG	.2410031E+03	SIGMAA	-.3802794E+02
BETA A	.1895804E+00	ALPHAA	.1832610E+02	YAW E	.9585548E+02	PTCH E	.9573790E+01
ROLL E	-.3848588E+02	U	-.3139005E+03	V	.1364256E+04	W	.9522637E+02
VEL R	.1033988E+04	GAM R	-.4727961E+01	HDG R	.1077352E+03	SIGMAR	-.3806279E+02
BETA R	.5195473E+00	ALPHAR	.1855851E+02	U-WIND	.8256630E+01	V-WIND	-.2039155E+01
W-WIND	0.	SIG-VA	.1685810E-02	SIG-GA	.1715580E-03	SIG-HA	.1539805E-03
SIG-H	.6424632E+00	SIG-LA	.3803931E-05	SIG-LO	.4811213E-05	SIG-SA	.1036688E-02
SIG-BA	.8690426E-04	SIG-AA	.6353689E-03	SIG-YE	.1036688E-02	SIG-PE	.8690426E-04
SIG-RE	.6353689E-03	SIG-U	.2671210E-02	SIG-V	.2093459E-02	SIG-W	.3251550E-02
MACH A	.3374395E+01	MACH R	.3388870E+01	PINF	.1207498E+04	TEMP	.2317255E+03
RHO	.1815307E-01	Q A	.9621286E+04	Q R	.9704010E+04	PSTAG	.1827063E+05
P	.3801543E+00	Q	.1068120E+00	R	-.3173183E+00	X ACCEL	-.2403259E+01
Y ACCEL	-.1038992E-01	Z ACCEL	-.1278280E+02	CXB	-.9061641E-01	CYB	-.3917586E-03
CZB	-.4819834E+00	CL	.4290463E+00	CD	.2375681E+00	L/D	.1805993E+01
CL-ROLL	-.9282720E-04	CM-PITCH	.7456052E-04	CN-YAW	-.2340361E-04	PDOT	-.2529195E+00
QDOT	.1126565E-01	RDOT	-.1434956E-01				

TIME	.1865000E+04	VEL A	.1004607E+04	GAM A	-.4879677E+01	HDG A	.1053622E+03
ALTDE	.2970515E+05	LATD	.3508428E+02	LONG	.2410563E+03	SIGMAA	-.3994038E+02
BETA A	.5496383E-01	ALPHAA	.1793401E+02	YAW E	.9378026E+02	PTCH E	.8842422E+01
ROLL E	-.4033641E+02	U	-.2731628E+03	V	.1347763E+04	W	.8545543E+02
VEL R	.1006520E+04	GAM R	-.4870380E+01	HDG R	.1058057E+03	SIGMAR	-.3997917E+02
BETA R	.3997099E+00	ALPHAR	.1821075E+02	U-WIND	.7987564E+01	V-WIND	.2344377E+00
W-WIND	0.	SIG-VA	.1744519E-02	SIG-GA	.1700672E-03	SIG-HA	.1478125E-03
SIG-H	.6314442E+00	SIG-LA	.3784848E-05	SIG-LO	.4766366E-05	SIG-SA	.1038331E-02
SIG-BA	.8738720E-04	SIG-AA	.6300118E-03	SIG-YE	.1038331E-02	SIG-PE	.8738720E-04
SIG-RE	.6300118E-03	SIG-U	.2614033E-02	SIG-V	.2050689E-02	SIG-W	.3221015E-02
MACH A	.3298871E+01	MACH R	.3305153E+01	PINF	.1286098E+04	TEMP	.2308417E+03
RHO	.1940873E-01	Q A	.9793990E+04	Q R	.9831328E+04	PSTAG	.1862598E+05
P	-.1376670E+00	Q	.1751585E+00	R	-.3806789E+00	X ACCEL	-.2441454E+01
Y ACCEL	-.2972521E-01	Z ACCEL	-.1289956E+02	CXB	-.9042123E-01	CYB	-.1100897E-02
CZB	-.4777458E+00	CL	.4266903E+00	CD	.2331360E+00	L/D	.1830220E+01
CL-ROLL	.2390287E-03	CM-PITCH	.8835679E-04	CN-YAW	.1365458E-03	PDOT	.6687858E+00
QDOT	.1681337E-01	RDOT	.6267806E-01				

TIME	.1870000E+04	VEL A	.9785826E+03	GAM A	-.5018899E+01	HDG A	.1032621E+03
ALTDE	.2927332E+05	LATD	.3507297E+02	LONG	.2411084E+03	SIGMAA	-.3939284E+02
BETA A	.1653052E+00	ALPHAA	.1764223E+02	YAW E	.9192175E+02	PTCH E	.8523359E+01
ROLL E	-.3971752E+02	U	-.2313408E+03	V	.1330030E+04	W	.8561065E+02
VEL R	.9788001E+03	GAM R	-.5017781E+01	HDG R	.1037249E+03	SIGMAR	-.3943507E+02
BETA R	.5222187E+00	ALPHAR	.1793410E+02	U-WIND	.7709049E+01	V-WIND	.1625358E+01
W-WIND	0.	SIG-VA	.1938132E-02	SIG-GA	.1703209E-03	SIG-HA	.1413617E-03
SIG-H	.6203164E+00	SIG-LA	.3766110E-05	SIG-LO	.4708592E-05	SIG-SA	.1040062E-02
SIG-BA	.1024793E-03	SIG-AA	.6219368E-03	SIG-YE	.1040062E-02	SIG-PE	.1024793E-03
SIG-RE	.6219368E-03	SIG-U	.2556328E-02	SIG-V	.2140568E-02	SIG-W	.3216497E-02
MACH A	.3219518E+01	MACH R	.3220233E+01	PINF	.1370333E+04	TEMP	.2299671E+03
RHO	.2075858E-01	Q A	.9939453E+04	Q R	.9943871E+04	PSTAG	.1893403E+05
P	.3004462E+00	Q	.1354295E+00	R	-.3203007E+00	X ACCEL	-.2515397E+01
Y ACCEL	-.1457804E-01	Z ACCEL	-.1292593E+02	CXB	-.9178411E-01	CYB	-.5319368E-03
CZB	-.4716533E+00	CL	.4216531E+00	CD	.2304123E+00	L/D	.1829994E+01
CL-ROLL	-.6549858E-04	CM-PITCH	-.1071081E-03	CN-YAW	-.1138133E-03	PDOT	-.1906193E+00
QDOT	-.2112057E-01	RDOT	-.4450779E-01				

TIME	.1875000E+04	VEL A	.9520797E+03	GAM A	-.5158291E+01	HDG A	.1011047E+03
ALTDE	.2884197E+05	LATD	.3506350E+02	LONG	.2411596E+03	SIGMAA	-.3936459E+02
BETA A	.2508144E+00	ALPHAA	.1729825E+02	YAW E	.8993331E+02	PTCH E	.8075288E+01
ROLL E	-.3961360E+02	U	-.1909439E+03	V	.1310858E+04	W	.8559919E+02
VEL R	.9513165E+03	GAM R	-.5162441E+01	HDG R	.1016256E+03	SIGMAR	-.3941415E+02
BETA R	.6499005E+00	ALPHAR	.1763132E+02	U-WIND	.8313465E+01	V-WIND	.2452792E+01
W-WIND	0.	SIG-VA	.2214715E-02	SIG-GA	.1719386E-03	SIG-HA	.1351766E-03
SIG-H	.6090858E+00	SIG-LA	.3748008E-05	SIG-LO	.4638003E-05	SIG-SA	.1041315E-02
SIG-BA	.1151712E-03	SIG-AA	.6144548E-03	SIG-YE	.1041315E-02	SIG-PE	.1151712E-03
SIG-RE	.6144548E-03	SIG-U	.2500310E-02	SIG-V	.2340667E-02	SIG-W	.3231818E-02
MACH A	.3138206E+01	MACH R	.3135691E+01	PINF	.1460343E+04	TEMP	.2291057E+03
RHO	.2220528E-01	Q A	.1006405E+05	Q R	.1004792E+05	PSTAG	.1920657E+05
P	-.6567364E-01	Q	.1630064E+00	R	-.4209854E+00	X ACCEL	-.2574220E+01
Y ACCEL	-.1177710E-01	Z ACCEL	-.1286243E+02	CXB	-.9275523E-01	CYB	-.4243566E-03
CZB	-.4634635E+00	CL	.4149206E+00	CD	.2263688E+00	L/D	.1832941E+01
CL-ROLL	-.1016812E-04	CM-PITCH	.1785288E-04	CN-YAW	-.2631912E-04	PDOT	-.3020148E-01
QDOT	.3819860E-02	RDOT	-.9763642E-02				

TIME	.1880000E+04	VEL A	.9257241E+03	GAM A	-.5310579E+01	HDG A	.9881726E+02
ALTDE	.2841133E+05	LATD	.3505585E+02	LONG	.2412097E+03	SIGMAA	-.4116243E+02
BETA A	-.1914599E+00	ALPHAA	.1674851E+02	YAW E	.8793134E+02	PTCH E	.7439952E+01
ROLL E	-.4139476E+02	U	-.1497516E+03	V	.1290414E+04	W	.8567987E+02
VEL R	.9238165E+03	GAM R	-.5321577E+01	HDG R	.9936962E+02	SIGMAR	-.4121368E+02
BETA R	.2151890E+00	ALPHAR	.1711897E+02	U-WIND	.8462495E+01	V-WIND	.3294708E+01
W-WIND	0.	SIG-VA	.2554611E-02	SIG-GA	.1749706E-03	SIG-HA	.1294092E-03
SIG-H	.5977666E+00	SIG-LA	.3730859E-05	SIG-LO	.4555132E-05	SIG-SA	.1043096E-02
SIG-BA	.1145646E-03	SIG-AA	.6070012E-03	SIG-YE	.1043096E-02	SIG-PE	.1145646E-03
SIG-RE	.6070012E-03	SIG-U	.2444897E-02	SIG-V	.2635978E-02	SIG-W	.3268290E-02
MACH A	.3056987E+01	MACH R	.3050688E+01	PINF	.1556485E+04	TEMP	.2282591E+03
RHO	.2375494E-01	Q A	.1017857E+05	Q R	.1013667E+05	PSTAG	.1946368E+05
P	-.3120961E+00	Q	.1686284E+00	R	-.3833980E+00	X ACCEL	-.2630113E+01
Y ACCEL	-.7222529E-01	Z ACCEL	-.1311145E+02	CXB	-.9369031E-01	CYB	-.2572821E-02
CZB	-.4670583E+00	CL	.4202463E+00	CD	.2243087E+00	L/D	.1873518E+01
CL-ROLL	.1024823E-03	CM-PITCH	.7081135E-03	CN-YAW	-.3331319E-04	PDOT	.2920102E+00
QDOT	.1345746E+00	RDOT	-.4207800E-02				

TIME	.1885000E+04	VEL A	.8997859E+03	GAM A	-.5499921E+01	HDG A	.9645178E+02
ALTDE	.2797966E+05	LATD	.3505006E+02	LONG	.2412586E+03	SIGMAA	-.4004589E+02
BETA A	-.1392446E+00	ALPHAA	.1629169E+02	YAW E	.8607741E+02	PTCH E	.7080386E+01
ROLL E	-.4021016E+02	U	-.1090257E+03	V	.1268768E+04	W	.8623942E+02
VEL R	.8967554E+03	GAM R	-.5518565E+01	HDG R	.9701586E+02	SIGMAR	-.4010050E+02
BETA R	.2784124E+00	ALPHAR	.1666742E+02	U-WIND	.8385044E+01	V-WIND	.4055733E+01
W-WIND	0.	SIG-VA	.2923920E-02	SIG-GA	.1790720E-03	SIG-HA	.1247470E-03
SIG-H	.5863648E+00	SIG-LA	.3715111E-05	SIG-LO	.4460364E-05	SIG-SA	.1043617E-02
SIG-BA	.1336603E-03	SIG-AA	.5993701E-03	SIG-YE	.1043617E-02	SIG-PE	.1336603E-03
SIG-RE	.5993701E-03	SIG-U	.2393866E-02	SIG-V	.2992315E-02	SIG-W	.3320826E-02
MACH A	.2976775E+01	MACH R	.2966749E+01	PINF	.1659613E+04	TEMP	.2274252E+03
RHO	.2542175E-01	Q A	.1029091E+05	Q R	.1022171E+05	PSTAG	.1972027E+05
P	.7638758E+00	Q	.2158438E+00	R	-.3443689E+00	X ACCEL	-.2698052E+01
Y ACCEL	.9202300E-01	Z ACCEL	-.1266241E+02	CXB	-.9504856E-01	CYB	.3241840E-02
CZB	-.4450789E+00	CL	.4015033E+00	CD	.2163694E+00	L/D	.1855638E+01
CL-ROLL	.5298656E-04	CM-PITCH	.3218239E-03	CN-YAW	-.3670757E-03	PDOT	.1292538E+00
QDOT	.5657163E-01	RDOT	-.1311560E+00				

TIME	.1890000E+04	VEL A	.8743305E+03	GAM A	-.5691861E+01	HDG A	.9414119E+02
ALTDE	.2754570E+05	LATD	.3504602E+02	LONG	.2413064E+03	SIGMAA	-.4093522E+02
BETA A	.1103676E+00	ALPHAA	.1612973E+02	YAW E	.8350388E+02	PTCH E	.6451312E+01
ROLL E	-.4099068E+02	U	-.7074326E+02	V	.1245693E+04	W	.8671470E+02
VEL R	.8700751E+03	GAM R	-.5719792E+01	HDG R	.9468709E+02	SIGMAR	-.4099151E+02
BETA R	.5022394E+00	ALPHAR	.1650693E+02	U-WIND	.7915249E+01	V-WIND	.4900274E+01
W-WIND	0.	SIG-VA	.3283430E-02	SIG-GA	.1834894E-03	SIG-HA	.1217078E-03
SIG-H	.5749288E+00	SIG-LA	.3701015E-05	SIG-LO	.4355964E-05	SIG-SA	.1043759E-02
SIG-BA	.1425238E-03	SIG-AA	.5911604E-03	SIG-YE	.1043759E-02	SIG-PE	.1425238E-03
SIG-RE	.5911604E-03	SIG-U	.2350136E-02	SIG-V	.3362756E-02	SIG-W	.3377691E-02
MACH A	.2897804E+01	MACH R	.2883700E+01	PINF	.1770612E+04	TEMP	.2266030E+03
RHO	.2722044E-01	Q A	.1040438E+05	Q R	.1030335E+05	PSTAG	.1998290E+05
P	-.3320841E+00	Q	.2071744E+00	R	-.4848593E+00	X ACCEL	-.2809337E+01
Y ACCEL	-.3663916E-01	Z ACCEL	-.1294833E+02	CXB	-.9787639E-01	CYB	-.1276497E-02
CZB	-.4511155E+00	CL	.4061661E+00	CD	.2193493E+00	L/D	.1851686E+01
CL-ROLL	.2918804E-04	CM-PITCH	-.1279205E-03	CN-YAW	.7622381E-04	PDOT	.9131451E-01
QDOT	-.2188126E-01	RDOT	.3085129E-01				

TIME	.1895000E+04	VEL A	.8482263E+03	GAM A	-.5937901E+01	HDG A	.9167439E+02
ALTDE	.2710882E+05	LATD	.3504371E+02	LONG	.2413528E+03	SIGMAA	-.4059652E+02
BETA A	.7895937E-01	ALPHAA	.1566756E+02	YAW E	.8143890E+02	PTCH E	.5940190E+01
ROLL E	-.4058586E+02	U	-.3249854E+02	V	.1221116E+04	W	.8774944E+02
VEL R	.8434926E+03	GAM R	-.5971346E+01	HDG R	.9222012E+02	SIGMAR	-.4065494E+02
BETA R	.4691507E+00	ALPHAR	.1604637E+02	U-WIND	.7846872E+01	V-WIND	.5028925E+01
W-WIND	0.	SIG-VA	.3649115E-02	SIG-GA	.1884969E-03	SIG-HA	.1210397E-03
SIG-H	.5634910E+00	SIG-LA	.3689047E-05	SIG-LO	.4243879E-05	SIG-SA	.1043540E-02
SIG-BA	.1567307E-03	SIG-AA	.5836313E-03	SIG-YE	.1043540E-02	SIG-PE	.1567307E-03
SIG-RE	.5836313E-03	SIG-U	.2317656E-02	SIG-V	.3761498E-02	SIG-W	.3443668E-02
MACH A	.2816326E+01	MACH R	.2800609E+01	PINF	.1890317E+04	TEMP	.2257927E+03
RHO	.2916501E-01	Q A	.1049193E+05	Q R	.1037515E+05	PSTAG	.2020233E+05
P	.3901881E+00	Q	.1968627E+00	R	-.3756004E+00	X ACCEL	-.2863478E+01
Y ACCEL	.2390547E-01	Z ACCEL	-.1266923E+02	CXB	-.9891665E-01	CYB	.8257961E-03
CZB	-.4376488E+00	CL	.3946749E+00	CD	.2134308E+00	L/D	.1849194E+01
CL-ROLL	-.1591265E-04	CM-PITCH	.7218250E-04	CN-YAW	-.3455148E-04	PDOT	-.4897594E-01
QDOT	.1160278E-01	RDOT	-.1488493E-01				

TIME	.1900000E+04	VEL A	.8208328E+03	GAM A	-.6197780E+01	HDG A	.8911950E+02
ALTDE	.2666766E+05	LATD	.3504308E+02	LONG	.2413978E+03	SIGMAA	-.4118583E+02
BETA A	.4113757E-01	ALPHAA	.1529030E+02	YAW E	.7904501E+02	PTCH E	.5319503E+01
ROLL E	-.4110250E+02	U	.4189597E+01	V	.1195260E+04	W	.8861780E+02
VEL R	.8172833E+03	GAM R	-.6224804E+01	HDG R	.8970454E+02	SIGMAR	-.4125090E+02
BETA R	.4608241E+00	ALPHAR	.1569387E+02	U-WIND	.8350494E+01	V-WIND	.3484931E+01
W-WIND	0.	SIG-VA	.3999379E-02	SIG-GA	.1935569E-03	SIG-HA	.1231093E-03
SIG-H	.5520977E+00	SIG-LA	.3679588E-05	SIG-LO	.4127036E-05	SIG-SA	.1043101E-02
SIG-BA	.1654799E-03	SIG-AA	.5752130E-03	SIG-YE	.1043101E-02	SIG-PE	.1654799E-03
SIG-RE	.5752130E-03	SIG-U	.2304478E-02	SIG-V	.4159165E-02	SIG-W	.3510250E-02
MACH A	.2730208E+01	MACH R	.2718402E+01	PINF	.2019905E+04	TEMP	.2249936E+03
RHO	.3127507E-01	Q A	.1053604E+05	Q R	.1044512E+05	PSTAG	.2034699E+05
P	-.3464420E+00	Q	.1909499E+00	R	-.4881295E+00	X ACCEL	-.2934433E+01
Y ACCEL	-.4084724E-01	Z ACCEL	-.1277531E+02	CXB	-.1009294E+00	CYB	-.1404935E-02
CZB	-.4394051E+00	CL	.3972350E+00	CD	.2132322E+00	L/D	.1862923E+01
CL-ROLL	.2443014E-04	CM-PITCH	-.1773677E-04	CN-YAW	.2819434E-04	PDOT	.7496591E-01
QDOT	-.6997396E-03	RDOT	.1312144E-01				

TIME	.1905000E+04	VEL A	.7960709E+03	GAM A	-.6497296E+01	HDG A	.8647024E+02
ALTDE	.2622127E+05	LATD	.3504408E+02	LONG	.2414414E+03	SIGMAA	-.4136164E+02
BETA A	-.1935792E+00	ALPHAA	.1496275E+02	YAW E	.7675327E+02	PTCH E	.4897048E+01
ROLL E	-.4125037E+02	U	.4067032E+02	V	.1167990E+04	W	.9008045E+02
VEL R	.7914110E+03	GAM R	-.6535719E+01	HDG R	.8703501E+02	SIGMAR	-.4142576E+02
BETA R	.2019548E+00	ALPHAR	.1536260E+02	U-WIND	.8026531E+01	V-WIND	.4242327E+01
W-WIND	0.	SIG-VA	.4328986E-02	SIG-GA	.2721075E-03	SIG-HA	.1639368E-03
SIG-H	.5407916E+00	SIG-LA	.3673151E-05	SIG-LO	.4008745E-05	SIG-SA	.1022502E-02
SIG-BA	.2570063E-03	SIG-AA	.4835107E-03	SIG-YE	.1022502E-02	SIG-PE	.2570063E-03
SIG-RE	.4835107E-03	SIG-U	.2319686E-02	SIG-V	.4569506E-02	SIG-W	.3581210E-02
MACH A	.2652494E+01	MACH R	.2636967E+01	PINF	.2160609E+04	TEMP	.2242059E+03
RHO	.3357117E-01	Q A	.1063751E+05	Q R	.1051333E+05	PSTAG	.2060272E+05
P	.1296037E+01	Q	.2721757E+00	R	.2087115E+00	X ACCEL	-.2997838E+01
Y ACCEL	-.1835262E+00	Z ACCEL	-.1275101E+02	CXB	-.1021125E+00	CYB	-.6251276E-02
CZB	-.4343254E+00	CL	.3932346E+00	CD	.2107891E+00	L/D	.1865535E+01
CL-ROLL	.1020546E-02	CM-PITCH	-.1698121E-03	CN-YAW	.3166088E-02	PDOT	.3280587E+01
QDOT	-.2963821E-01	RDOT	.1246632E+01				

TIME	.1910000E+04	VEL A	.7743791E+03	GAM A	-.6280460E+01	HDG A	.8446521E+02
ALTDE	.2577981E+05	LATD	.3504658E+02	LONG	.2414835E+03	SIGMAA	-.1914874E+02
BETA A	-.6754198E-01	ALPHAA	.1501600E+02	YAW E	.7960519E+02	PTCH E	.7931895E+01
ROLL E	-.1922826E+02	U	.6717366E+02	V	.1140500E+04	W	.8471345E+02
VEL R	.7654370E+03	GAM R	-.6354131E+01	HDG R	.8493413E+02	SIGMAR	-.1920088E+02
BETA R	.3434712E+00	ALPHAR	.1523866E+02	U-WIND	.7067048E+01	V-WIND	.8379701E+01
W-WIND	0.	SIG-VA	.4576609E-02	SIG-GA	.2767296E-03	SIG-HA	.1641093E-03
SIG-H	.5296476E+00	SIG-LA	.3669558E-05	SIG-LO	.3893887E-05	SIG-SA	.9761641E-03
SIG-BA	.4187051E-03	SIG-AA	.4411831E-03	SIG-YE	.9761641E-03	SIG-PE	.4187051E-03
SIG-RE	.4411831E-03	SIG-U	.2321962E-02	SIG-V	.4835931E-02	SIG-W	.3611073E-02
MACH A	.2584584E+01	MACH R	.2554738E+01	PINF	.2309944E+04	TEMP	.2234489E+03
RHO	.3601309E-01	Q A	.1079786E+05	Q R	.1054992E+05	PSTAG	.2097109E+05
P	.5320216E+01	Q	.1648562E+00	R	.9609563E+00	X ACCEL	-.3011077E+01
Y ACCEL	.1061174E+00	Z ACCEL	-.1295414E+02	CXB	-.1010264E+00	CYB	.3560406E-02
CZB	-.4346317E+00	CL	.3936158E+00	CD	.2101849E+00	L/D	.1872712E+01
CL-ROLL	.1019504E-03	CM-PITCH	-.8199564E-03	CN-YAW	-.1415111E-03	PDOT	.2996972E+00
QDOT	-.9327136E-01	RDOT	-.5917682E-01				

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*   METBET1 USING LAIRS(USE8,10/81   ),AMABETH,NE0105 DYNAM. DATA   PAGE   26   *
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TIME	.1915000E+04	VEL A	.7492880E+03	GAM A	-.5443324E+01	HDG A	.8395884E+02
ALTDE	.2538960E+05	LATD	.3504977E+02	LONG	.2415242E+03	SIGMAA	-.9917383E+00
BETA A	.1407486E+00	ALPHAA	.1500141E+02	YAW E	.8356069E+02	PTCH E	.9553488E+01
ROLL E	-.9876075E+00	U	.7247077E+02	V	.1114482E+04	W	.7107827E+02
VEL R	.7387908E+03	GAM R	-.5520905E+01	HDG R	.8434427E+02	SIGMAR	-.1029049E+01
BETA R	.5229879E+00	ALPHAR	.1508575E+02	U-WIND	.6030896E+01	V-WIND	.9982794E+01
W-WIND	0.	SIG-VA	.4525728E-02	SIG-GA	.2723881E-03	SIG-HA	.1590414E-03
SIG-H	.5188526E+00	SIG-LA	.3665635E-05	SIG-LO	.3790915E-05	SIG-SA	.9137352E-03
SIG-BA	.5417894E-03	SIG-AA	.3915779E-03	SIG-YE	.9137352E-03	SIG-PE	.5417894E-03
SIG-RE	.3915779E-03	SIG-U	.2249280E-02	SIG-V	.4786638E-02	SIG-W	.3546591E-02
MACH A	.2504484E+01	MACH R	.2469397E+01	PINF	.2450988E+04	TEMP	.2227991E+03
RHO	.3832349E-01	Q A	.1075802E+05	Q R	.1045871E+05	PSTAG	.2096810E+05
P	.4200551E+01	Q	.1322892E+00	R	.8166759E+00	X ACCEL	-.3110290E+01
Y ACCEL	.5736276E-01	Z ACCEL	-.1336710E+02	CXB	-.1047287E+00	CYB	.1948336E-02
CZB	-.4500927E+00	CL	.4076450E+00	CD	.2176628E+00	L/D	.1872828E+01
CL-ROLL	-.1666342E-03	CM-PITCH	-.2236802E-02	CN-YAW	-.3050893E-03	PDOT	-.5270285E+00
QDOT	-.3955279E+00	RDOT	-.1349984E+00				

TIME	.1920000E+04	VEL A	.7229827E+03	GAM A	-.4877303E+01	HDG A	.8459103E+02
ALTDE	.2506415E+05	LATD	.3505286E+02	LONG	.2415634E+03	SIGMAA	.1275536E+02
BETA A	.1643049E+00	ALPHAA	.1327916E+02	YAW E	.8736964E+02	PTCH E	.8110429E+01
ROLL E	.1285340E+02	U	.6315208E+02	V	.1090422E+04	W	.6146959E+02
VEL R	.7132235E+03	GAM R	-.4944205E+01	HDG R	.8490109E+02	SIGMAR	.1272884E+02
BETA R	.4803811E+00	ALPHAR	.1327628E+02	U-WIND	.4752561E+01	V-WIND	.9399397E+01
W-WIND	0.	SIG-VA	.4286754E-02	SIG-GA	.2624198E-03	SIG-HA	.1519759E-03
SIG-H	.5085397E+00	SIG-LA	.3659110E-05	SIG-LO	.3705235E-05	SIG-SA	.8484547E-03
SIG-BA	.6240659E-03	SIG-AA	.3598612E-03	SIG-YE	.8484547E-03	SIG-PE	.6240659E-03
SIG-RE	.3598612E-03	SIG-U	.2148523E-02	SIG-V	.4537324E-02	SIG-W	.3424717E-02
MACH A	.2419424E+01	MACH R	.2386766E+01	PINF	.2575543E+04	TEMP	.2222716E+03
RHO	.4036658E-01	Q A	.1054988E+05	Q R	.1026699E+05	PSTAG	.2064839E+05
P	.1800001E+01	Q	-.8830261E-01	R	.7423437E+00	X ACCEL	-.3137609E+01
Y ACCEL	-.8936317E-01	Z ACCEL	-.1153677E+02	CXB	-.1077219E+00	CYB	-.3068060E-02
CZB	-.3960862E+00	CL	.3607526E+00	CD	.1958211E+00	L/D	.1842256E+01
CL-ROLL	.3517249E-04	CM-PITCH	-.1619493E-02	CN-YAW	.5210651E-03	PDOT	.1410501E+00
QDOT	-.2943379E+00	RDOT	.1974463E+00				

TIME	.1925000E+04	VEL A	.6988308E+03	GAM A	-.4866468E+01	HDG A	.8596263E+02
ALTDE	.2476502E+05	LATD	.3505532E+02	LONG	.2416015E+03	SIGMAA	.2209985E+02
BETA A	-.1226852E+00	ALPHAA	.1271725E+02	YAW E	.9085996E+02	PTCH E	.6874524E+01
ROLL E	.2217250E+02	U	.4530756E+02	V	.1068419E+04	W	.5928447E+02
VEL R	.6898314E+03	GAM R	-.4930111E+01	HDG R	.8622015E+02	SIGMAR	.2207787E+02
BETA R	.1389861E+00	ALPHAR	.1267974E+02	U-WIND	.3717687E+01	V-WIND	.8799324E+01
W-WIND	0.	SIG-VA	.3952286E-02	SIG-GA	.2498975E-03	SIG-HA	.1450198E-03
SIG-H	.4987437E+00	SIG-LA	.3649734E-05	SIG-LO	.3637798E-05	SIG-SA	.8009624E-03
SIG-BA	.6719377E-03	SIG-AA	.3281488E-03	SIG-YE	.8009624E-03	SIG-PE	.6719377E-03
SIG-RE	.3281488E-03	SIG-U	.2049865E-02	SIG-V	.4185652E-02	SIG-W	.3278915E-02
MACH A	.2341091E+01	MACH R	.2310944E+01	PINF	.2695886E+04	TEMP	.2217990E+03
RHO	.4234277E-01	Q A	.1033935E+05	Q R	.1007477E+05	PSTAG	.2032269E+05
P	.2058778E+01	Q	.2053288E+00	R	.7279533E+00	X ACCEL	-.3165315E+01
Y ACCEL	.4848601E-01	Z ACCEL	-.1098842E+02	CXB	-.1108756E+00	CYB	.1698383E-02
CZB	-.3849059E+00	CL	.3510553E+00	CD	.1928888E+00	L/D	.1819988E+01
CL-ROLL	.6979638E-04	CM-PITCH	.4410963E-03	CN-YAW	-.1377868E-03	PDOT	.1933406E+00
QDOT	.1061944E+00	RDOT	-.5141869E-01				

TIME	.1930000E+04	VEL A	.6745466E+03	GAM A	-.4980170E+01	HDG A	.8800221E+02
ALTDE	.2447073E+05	LATD	.3505682E+02	LONG	.2416383E+03	SIGMAA	.2873712E+02
BETA A	.2659848E+00	ALPHAA	.1322959E+02	YAW E	.9413362E+02	PTCH E	.6751745E+01
ROLL E	.2886334E+02	U	.2046962E+02	V	.1045657E+04	W	.5855803E+02
VEL R	.6659422E+03	GAM R	-.5044683E+01	HDG R	.8823172E+02	SIGMAR	.2871742E+02
BETA R	.4974886E+00	ALPHAR	.1317627E+02	U-WIND	.2956986E+01	V-WIND	.8544858E+01
W-WIND	0.	SIG-VA	.3538297E-02	SIG-GA	.2351848E-03	SIG-HA	.1383510E-03
SIG-H	.4894543E+00	SIG-LA	.3637432E-05	SIG-LO	.3587045E-05	SIG-SA	.7688876E-03
SIG-BA	.7026915E-03	SIG-AA	.2905641E-03	SIG-YE	.7688876E-03	SIG-PE	.7026915E-03
SIG-RE	.2905641E-03	SIG-U	.1955870E-02	SIG-V	.3748153E-02	SIG-W	.3111913E-02
MACH A	.2262052E+01	MACH R	.2233197E+01	PINF	.2820048E+04	TEMP	.2213457E+03
RHO	.4438361E-01	Q A	.1009756E+05	Q R	.9841596E+04	PSTAG	.1994218E+05
P	.1428597E+00	Q	.2460283E+00	R	.3878868E+00	X ACCEL	-.3138343E+01
Y ACCEL	-.1766693E-01	Z ACCEL	-.1177346E+02	CXB	-.1125528E+00	CYB	-.6336027E-03
CZB	-.4222407E+00	CL	.3852767E+00	CD	.2061970E+00	L/D	.1868488E+01
CL-ROLL	-.2438185E-03	CM-PITCH	-.9497604E-03	CN-YAW	.2010803E-03	PDOT	-.6808243E+00
QDOT	-.1755656E+00	RDOT	.5437084E-01				

TIME	.1935000E+04	VEL A	.6513895E+03	GAM A	-.5290045E+01	HDG A	.9016023E+02
ALTDE	.2417769E+05	LATD	.3505716E+02	LONG	.2416739E+03	SIGMAA	.2835806E+02
BETA A	.1044629E+00	ALPHAA	.1166624E+02	YAW E	.9560236E+02	PTCH E	.5033497E+01
ROLL E	.2835649E+02	U	-.4267143E+01	V	.1022581E+04	W	.6005654E+02
VEL R	.6428159E+03	GAM R	-.5360807E+01	HDG R	.9038201E+02	SIGMAR	.2833763E+02
BETA R	.3324070E+00	ALPHAR	.1162367E+02	U-WIND	.2453264E+01	V-WIND	.8622520E+01
W-WIND	0.	SIG-VA	.3149098E-02	SIG-GA	.2214157E-03	SIG-HA	.1328989E-03
SIG-H	.4806355E+00	SIG-LA	.3622094E-05	SIG-LO	.3550092E-05	SIG-SA	.7734546E-03
SIG-BA	.6932555E-03	SIG-AA	.2926171E-03	SIG-YE	.7734546E-03	SIG-PE	.6932555E-03
SIG-RE	.2926171E-03	SIG-U	.1879523E-02	SIG-V	.3334868E-02	SIG-W	.2956558E-02
MACH A	.2186567E+01	MACH R	.2157787E+01	PINF	.2949638E+04	TEMP	.2209063E+03
RHO	.4651551E-01	Q A	.9868455E+04	Q R	.9610385E+04	PSTAG	.1958834E+05
P	.7387595E+00	Q	-.1412657E+00	R	.5074139E+00	X ACCEL	-.3227616E+01
Y ACCEL	.4165427E-01	Z ACCEL	-.1004198E+02	CXB	-.1184309E+00	CYB	.1528420E-02
CZB	-.3684705E+00	CL	.3369108E+00	CD	.1904929E+00	L/D	.1768626E+01
CL-ROLL	.4419268E-04	CM-PITCH	.4350087E-03	CN-YAW	-.4776505E-04	PDOT	.1201179E+00
QDOT	.8484610E-01	RDOT	-.1208453E-01				

TIME	.1940000E+04	VEL A	.6311429E+03	GAM A	-.6054046E+01	HDG A	.9221340E+02
ALTDE	.2386152E+05	LATD	.3505647E+02	LONG	.2417082E+03	SIGMAA	.2912408E+02
BETA A	.2869206E+00	ALPHAA	.1108523E+02	YAW E	.9734706E+02	PICH E	.3778776E+01
ROLL E	.2904955E+02	U	-.2643260E+02	V	.1000621E+04	W	.6656445E+02
VEL R	.6221810E+03	GAM R	-.6141582E+01	HDG R	.9244894E+02	SIGMAR	.2909933E+02
BETA R	.5341252E+00	ALPHAR	.1104777E+02	U-WIND	.2192850E+01	V-WIND	.9109620E+01
W-WIND	0.	SIG-VA	.2824635E-02	SIG-GA	.2097278E-03	SIG-HA	.1283917E-03
SIG-H	.4722199E+00	SIG-LA	.3604529E-05	SIG-LO	.3523497E-05	SIG-SA	.7718035E-03
SIG-BA	.6911430E-03	SIG-AA	.2858946E-03	SIG-YE	.7718035E-03	SIG-PE	.6911430E-03
SIG-RE	.2858946E-03	SIG-U	.1816755E-02	SIG-V	.2987952E-02	SIG-W	.2824900E-02
MACH A	.2120814E+01	MACH R	.2090700E+01	PINF	.3096468E+04	TEMP	.2204461E+03
RHO	.4893295E-01	Q A	.9746006E+04	Q R	.9471194E+04	PSTAG	.1943940E+05
P	-.4549901E+00	Q	-.2010859E-01	R	.4022266E+00	X ACCEL	-.3289694E+01
Y ACCEL	-.3762843E-01	Z ACCEL	-.9559569E+01	CXB	-.1222132E+00	CYB	-.1397909E-02
CZB	-.3551413E+00	CL	.3250173E+00	CD	.1882157E+00	L/D	.1726834E+01
CL-ROLL	-.4250636E-04	CM-PITCH	.2294602E-03	CN-YAW	.6484765E-04	PDOT	-.1125105E+00
QDOT	.3822829E-01	RDOT	.1928999E-01				

TIME	.1945000E+04	VEL A	.6105336E+03	GAM A	-.6927160E+01	HDG A	.9424233E+02
ALTDE	.2351055E+05	LATD	.3505481E+02	LONG	.2417414E+03	SIGMAA	.2890973E+02
BETA A	.2106202E+00	ALPHAA	.1088136E+02	YAW E	.9930233E+02	PTCH E	.2713349E+01
ROLL E	.2874298E+02	U	-.4712974E+02	V	.9786382E+03	W	.7363488E+02
VEL R	.6024530E+03	GAM R	-.7020537E+01	HDG R	.9452078E+02	SIGMAR	.2887624E+02
BETA R	.4977265E+00	ALPHAR	.1082957E+02	U-WIND	.2295230E+01	V-WIND	.8340509E+01
W-WIND	0.	SIG-VA	.2547858E-02	SIG-GA	.1993718E-03	SIG-HA	.1245681E-03
SIG-H	.4641574E+00	SIG-LA	.3585133E-05	SIG-LO	.3504627E-05	SIG-SA	.7767046E-03
SIG-BA	.6820985E-03	SIG-AA	.2802089E-03	SIG-YE	.7767046E-03	SIG-PE	.6820985E-03
SIG-RE	.2802089E-03	SIG-U	.1763706E-02	SIG-V	.2689309E-02	SIG-W	.2708103E-02
MACH A	.2053861E+01	MACH R	.2026678E+01	PINF	.3268433E+04	TEMP	.2199526E+03
RHO	.5176636E-01	Q A	.9647984E+04	Q R	.9394287E+04	PSTAG	.1934886E+05
P	-.3769428E+00	Q	.1425062E-02	R	.4426919E+00	X ACCEL	-.3326026E+01
Y ACCEL	-.5100943E-01	Z ACCEL	-.9453506E+01	CXB	-.1248047E+00	CYB	-.1914061E-02
CZB	-.3547302E+00	CL	.3247921E+00	CD	.1895253E+00	L/D	.1713714E+01
CL-ROLL	-.4715411E-04	CM-PITCH	.2485806E-03	CN-YAW	-.8497753E-04	PDOT	-.1335905E+00
QDOT	.4150821E-01	RDOT	-.3172178E-01				

TIME	.1950000E+04	VEL A	.5890597E+03	GAM A	-.7802090E+01	HDG A	.9615335E+02
ALTDE	.2312461E+05	LATD	.3505227E+02	LONG	.2417733E+03	SIGMAA	.2858159E+02
BETA A	-.4218074E+00	ALPHAA	.1133481E+02	YAW E	.1019170E+03	PTCH E	.1975451E+01
ROLL E	.2824548E+02	U	-.6587220E+02	V	.9563746E+03	W	.7996585E+02
VEL R	.5831012E+03	GAM R	-.7882320E+01	HDG R	.9654862E+02	SIGMAR	.2852719E+02
BETA R	-.3951378E-01	ALPHAR	.1121811E+02	U-WIND	.3315514E+01	V-WIND	.6420824E+01
W-WIND	0.	SIG-VA	.2326549E-02	SIG-GA	.1903107E-03	SIG-HA	.1213519E-03
SIG-H	.4564069E+00	SIG-LA	.3564029E-05	SIG-LO	.3491416E-05	SIG-SA	.7836773E-03
SIG-BA	.6693211E-03	SIG-AA	.2702096E-03	SIG-YE	.7836773E-03	SIG-PE	.6693211E-03
SIG-RE	.2702096E-03	SIG-U	.1719200E-02	SIG-V	.2447186E-02	SIG-W	.2605069E-02
MACH A	.1983972E+01	MACH R	.1963904E+C1	PINF	.3469076E+04	TEMP	.2194319E+03
RHO	.5507460E-01	Q A	.9555199E+04	Q R	.9362872E+04	PSTAG	.1928371E+05
P	.4586940E+00	Q	.6828796E-01	R	.4799511E+00	X ACCEL	-.3410977E+01
Y ACCEL	.2619768E-01	Z ACCEL	-.9860818E+01	CXB	-.1292197E+00	CYB	.9924592E-03
CZB	-.3735621E+00	CL	.3408788E+C0	CD	.2001199E+00	L/D	.1703373E+01
CL-ROLL	-.1235708E-03	CM-PITCH	-.2224148E-03	CN-YAW	-.1580274E-03	PDOT	-.3428023E+00
QDOT	-.3560359E-01	RDOT	-.6117100E-01				

TIME	.1955000E+04	VEL A	.5680139E+03	GAM A	-.8566214E+01	HDG A	.9850115E+02
ALTDE	.2271155E+05	LATD	.3504886E+02	LONG	.2418040E+03	SIGMAA	.2759132E+02
BETA A	.4465583E+00	ALPHAA	.1068901E+02	YAW E	.1030399E+03	PTCH E	.1128509E+01
ROLL E	.2733749E+02	U	-.8601498E+02	V	.9333018E+03	W	.8460696E+02
VEL R	.5638199E+03	GAM R	-.8630419E+01	HDG R	.9887648E+02	SIGMAR	.2753646E+02
BETA R	.8052565E+00	ALPHAR	.1057419E+02	U-WIND	.2982658E+01	V-WIND	.4746766E+01
W-WIND	0.	SIG-VA	.2106305E-02	SIG-GA	.2575626E-03	SIG-HA	.1669057E-03
SIG-H	.4489363E+00	SIG-LA	.3541129E-05	SIG-LO	.3482266E-05	SIG-SA	.1053404E-02
SIG-BA	.6893324E-04	SIG-AA	.4581758E-03	SIG-YE	.1053404E-02	SIG-PE	.6893324E-04
SIG-RE	.4581758E-03	SIG-U	.1684336E-02	SIG-V	.2238467E-02	SIG-W	.2507528E-02
MACH A	.1915408E+01	MACH R	.1901265E+01	PINF	.3698082E+04	TEMP	.2189009E+03
RHO	.5885270E-01	Q A	.9494107E+04	Q R	.9354422E+04	PSTAG	.1929251E+05
P	-.1849428E+01	Q	-.1880463E+00	R	.1153312E+00	X ACCEL	-.3442640E+01
Y ACCEL	-.1020604E+00	Z ACCEL	-.9830547E+01	CXB	-.1312415E+00	CYB	-.3890781E-02
CZB	-.3747634E+00	CL	.3439182E+00	CD	.1984746E+00	L/D	.1732807E+01
CL-ROLL	-.3956099E-03	CM-PITCH	-.1518486E-03	CN-YAW	.5621024E-03	PDOT	-.1022816E+01
QDOT	-.3137189E-01	RDOT	.1572141E+00				

TIME	.1960000E+04	VEL A	.5482427E+03	GAM A	-.9365737E+01	HDG A	.1005404E+03
ALTDE	.2227496E+05	LATD	.3504466E+02	LONG	.2418335E+03	SIGMAA	.2140637E+02
BETA A	.7175731E-01	ALPHAA	.1025023E+02	YAW E	.1041983E+03	PTCH E	.2159223E+00
ROLL E	.2111992E+02	U	-.1002743E+03	V	.9115792E+03	W	.8921880E+02
VEL R	.5458038E+03	GAM R	-.9407968E+01	HDG R	.1007325E+03	SIGMAR	.2137513E+02
BETA R	.2636436E+00	ALPHAR	.1022042E+02	U-WIND	.1322251E+01	V-WIND	.2763581E+01
W-WIND	0.	SIG-VA	.2001261E-02	SIG-GA	.2480397E-03	SIG-HA	.1662862E-03
SIG-H	.4417177E+00	SIG-LA	.3516405E-05	SIG-LO	.3476059E-05	SIG-SA	.1055801E-02
SIG-BA	.7056825E-04	SIG-AA	.4580830E-03	SIG-YE	.1055801E-02	SIG-PE	.7056825E-04
SIG-RE	.4580830E-03	SIG-U	.1663341E-02	SIG-V	.2124901E-02	SIG-W	.2430941E-02
MACH A	.1850981E+01	MACH R	.1842747E+01	PINF	.3957276E+04	TEMP	.2183704E+03
RHO	.6313058E-01	Q A	.9487577E+04	Q R	.9403351E+04	PSTAG	.1941825E+05
P	-.2921523E+00	Q	-.2741351E-01	R	.3252388E+00	X ACCEL	-.3559770E+01
Y ACCEL	-.8050003E-01	Z ACCEL	-.9505678E+01	CXB	-.1357817E+00	CYB	-.3070543E-02
CZB	-.3625787E+00	CL	.3326299E+00	CD	.1981345E+00	L/D	.1678808E+01
CL-ROLL	-.2872425E-03	CM-PITCH	-.9433472E-04	CN-YAW	-.1929980E-03	PDOT	-.7798761E+00
QDOT	-.1797442E-01	RDOT	-.8223720E-01				

TIME	.1965000E+04	VEL A	.5283047E+03	GAM A	-.1002636E+02	HDG A	.1023291E+03
ALTDE	.2181945E+05	LATD	.3503990E+02	LONG	.2418618E+03	SIGMAA	.1855329E+02
BETA A	-.1697383E+00	ALPHAA	.1023365E+02	YAW E	.1057284E+03	PTCH E	-.3659686E+00
ROLL E	.1822904E+02	U	-.1111540E+03	V	.8899814E+03	W	.9197849E+02
VEL R	.5275617E+03	GAM R	-.1004062E+02	HDG R	.1023552E+03	SIGMAR	.1854875E+02
BETA R	-.1408258E+00	ALPHAR	.1023899E+02	U-WIND	.7016703E-01	V-WIND	.7876716E+00
W-WIND	0.	SIG-VA	.1949727E-02	SIG-GA	.2400447E-03	SIG-HA	.1660613E-03
SIG-H	.4347231E+00	SIG-LA	.3489980E-05	SIG-LO	.3472327E-05	SIG-SA	.1057904E-02
SIG-BA	.8907740E-04	SIG-AA	.4557810E-03	SIG-YE	.1057914E-02	SIG-PE	.8907740E-04
SIG-RE	.4557810E-03	SIG-U	.1650143E-02	SIG-V	.2066517E-02	SIG-W	.2363944E-02
MACH A	.1785787E+01	MACH R	.1783276E+01	PINF	.4247841E+04	TEMP	.2178521E+03
RHO	.6792721E-01	Q A	.9479437E+04	Q R	.9452794E+04	PSTAG	.1955938E+05
P	-.2133168E+00	Q	-.4746655E-03	R	.3318261E+00	X ACCEL	-.3725630E+01
Y ACCEL	-.2371533E-02	Z ACCEL	-.9785759E+01	CXB	-.1422100E+00	CYB	-.9052310E-04
CZB	-.3735295E+00	CL	.3423218E+00	CD	.2063099E+00	L/D	.1659260E+01
CL-ROLL	.6893450E-05	CM-PITCH	-.4542310E-03	CN-YAW	-.2769163E-04	PDOT	.1668343E-01
QDOT	-.8034448E-01	RDOT	-.8770156E-02				

TIME	.1970000E+04	VEL A	.5084794E+03	GAM A	-.1057007E+02	HDG A	.1040381E+03
ALTDE	.2135432E+05	LATD	.3503469E+02	LONG	.2418889E+03	SIGMAA	.1530135E+02
BETA A	-.3029605E+00	ALPHAA	.9898507E+01	YAW E	.1069270E+03	PTCH E	-.1092120E+01
ROLL E	.1498056E+02	U	-.1200806E+03	V	.8686614E+03	W	.9327441E+02
VEL R	.5093583E+03	GAM R	-.1055163E+02	HDG R	.1038750E+03	SIGMAR	.1533143E+02
BETA R	-.4625506E+00	ALPHAR	.9923086E+01	U-WIND	-.1167128E+01	V-WIND	-.1211356E+01
W-WIND	0.	SIG-VA	.1934644E-02	SIG-GA	.2330651E-03	SIG-HA	.1664553E-03
SIG-H	.4279329E+00	SIG-LA	.3461826E-05	SIG-LO	.3470837E-05	SIG-SA	.1058526E-02
SIG-BA	.1146840E-03	SIG-AA	.4547297E-03	SIG-YE	.1058526E-02	SIG-PE	.1146840E-03
SIG-RE	.4547297E-03	SIG-U	.1646033E-02	SIG-V	.2045408E-02	SIG-W	.2303497E-02
MACH A	.1720713E+01	MACH R	.1723687E+01	PINF	.4567395E+04	TEMP	.2173613E+03
RHO	.7320211E-01	Q A	.9463247E+04	Q R	.9495992E+04	PSTAG	.1970353E+05
P	-.4898035E+00	Q	-.3323620E-01	R	.3162372E+00	X ACCEL	-.3788164E+01
Y ACCEL	.2125210E-01	Z ACCEL	-.9752203E+01	CXB	-.1448233E+00	CYB	.8124780E-03
CZB	-.3728314E+00	CL	.3423857E+00	CD	.2067584E+00	L/D	.1655970E+01
CL-ROLL	.5563467E-03	CM-PITCH	.4079221E-03	CN-YAW	-.4443747E-04	PDOT	.1480727E+01
QDOT	.6852281E-01	RDOT	.1971843E-01				

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*****************************************************************************************************
*     METBET1 USING LAIRS(USE8,10/81        ).AMABETH.NE0105 DYNAM. DATA                 PAGE   32   *
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TIME	.1975000E+04	VEL A	.4887302E+03	GAM A	-.1098109E+02	HDG A	.1057315E+03
ALTDE	.2088608E+05	LATD	.3502912E+02	LONG	.2419149E+03	SIGMAA	.1328369E+02
BETA A	.2568578E+00	ALPHAA	.9534956E+01	YAW E	.1076669E+03	PTCH E	-.1638249E+01
ROLL E	.1309168E+02	U	-.1277672E+03	V	.8476931E+03	W	.9309579E+02
VEL R	.4912967E+03	GAM R	-.1092302E+02	HDG R	.1053586E+03	SIGMAR	.1335449E+02
BETA R	-.1127484E+00	ALPHAR	.9562780E+01	U-WIND	-.2315686E+01	V-WIND	-.3357516E+01
W-WIND	0.	SIG-VA	.1946964E-02	SIG-GA	.2268455E-03	SIG-HA	.1676964E-03
SIG-H	.4213329E+00	SIG-LA	.3431894E-05	SIG-LO	.3471554E-05	SIG-SA	.1060596E-02
SIG-BA	.1311111E-03	SIG-AA	.4518361E-03	SIG-YE	.1060596E-02	SIG-PE	.1311111E-03
SIG-RE	.4518361E-03	SIG-U	.1652775E-02	SIG-V	.2052300E-02	SIG-W	.2248000E-02
MACH A	.1655608E+01	MACH R	.1664302E+01	PINF	.4914196E+04	TEMP	.2169080E+03
RHO	.7892494E-01	Q A	.9425893E+04	Q R	.9525150E+04	PSTAG	.1982664E+05
P	-.1249416E+01	Q	-.8277282E-01	R	.2554526E+00	X ACCEL	-.3834293E+01
Y ACCEL	-.7486572E-01	Z ACCEL	-.9854712E+01	CXB	-.1471463E+00	CYB	-.2873076E-02
CZB	-.3781882E+00	CL	.3485887E+00	CD	.2077601E+00	L/D	.1677843E+01
CL-ROLL	.5305475E-03	CM-PITCH	.8000279E-04	CN-YAW	-.3739899E-03	PDOT	.1386003E+01
QDOT	.8167656E-02	RDOT	-.9208859E-01				

TIME	.1980000E+04	VEL A	.4701850E+03	GAM A	-.1127430E+02	HDG A	.1070736E+03
ALTDE	.2042065E+05	LATD	.3502328E+02	LONG	.2419398E+03	SIGMAA	.1101126E+02
BETA A	-.2020817E+00	ALPHAA	.9469503E+01	YAW E	.1090713E+03	PTCH E	-.2012372E+01
ROLL E	.1076263E+02	U	-.1315604E+03	V	.8276544E+03	W	.9192407E+02
VEL R	.4731795E+03	GAM R	-.1120202E+02	HDG R	.1064653E+03	SIGMAR	.1113019E+02
BETA R	-.8014506E+00	ALPHAR	.9513131E+01	U-WIND	-.3821627E+01	V-WIND	-.4340236E+01
W-WIND	0.	SIG-VA	.1973533E-02	SIG-GA	.2214792E-03	SIG-HA	.1691789E-03
SIG-H	.4149111E+00	SIG-LA	.3400176E-05	SIG-LO	.3474624E-05	SIG-SA	.1061776E-02
SIG-BA	.1535579E-03	SIG-AA	.4486749E-03	SIG-YE	.1061776E-02	SIG-PE	.1535579E-03
SIG-RE	.4486749E-03	SIG-U	.1665468E-02	SIG-V	.2074260E-02	SIG-W	.2197629E-02
MACH A	.1594287E+01	MACH R	.1604440E+01	PINF	.5285825E+04	TEMP	.2164995E+03
RHO	.8505368E-01	Q A	.9401571E+04	Q R	.9521707E+04	PSTAG	.1999024E+05
P	.5030696E+00	Q	-.4665386E-01	R	.2792750E+00	X ACCEL	-.3967045E+01
Y ACCEL	.3515302E-01	Z ACCEL	-.1011960E+02	CXB	-.1526125E+00	CYB	.1352340E-02
CZB	-.3893020E+00	CL	.3588889E+00	CD	.2145819E+00	L/D	.1672503E+01
CL-ROLL	.2504487E-03	CM-PITCH	-.3268949E-03	CN-YAW	-.2493330E-03	PDOT	.6480543E+00
QDOT	-.5440245E-01	RDOT	-.6628652E-01				

TIME	.1985000E+04	VEL A	.4526441E+03	GAM A	-.1141040E+02	HDG A	.1084833E+03
ALTDE	.1996431E+05	LATD	.3501730E+02	LONG	.2419635E+03	SIGMAA	.9899955E+01
BETA A	.3675578E-01	ALPHAA	.9261548E+01	YAW E	.1100343E+03	PTCH E	-.2277432E+01
ROLL E	.9717499E+01	U	-.1345101E+03	V	.8074462E+03	W	.8954900E+02
VEL R	.4546097E+03	GAM R	-.1136041E+02	HDG R	.1075653E+03	SIGMAR	.1008193E+02
BETA R	-.8581132E+00	ALPHAR	.9368431E+01	U-WIND	-.6154211E+01	V-WIND	-.4110965E+01
W-WIND	0.	SIG-VA	.2009135E-02	SIG-GA	.2163808E-03	SIG-HA	.1706823E-03
SIG-H	.4086522E+00	SIG-LA	.3366763E-05	SIG-LO	.3480272E-05	SIG-SA	.1064936E-02
SIG-BA	.1647595E-03	SIG-AA	.4441718E-03	SIG-YE	.1064936E-02	SIG-PE	.1647595E-03
SIG-RE	.4441718E-03	SIG-U	.1679061E-02	SIG-V	.2105539E-02	SIG-W	.2149099E-02
MACH A	.1536081E+01	MACH R	.1542751E+01	PINF	.5678252E+04	TEMP	.2161413E+03
RHO	.9151961E-01	Q A	.9375572E+04	Q R	.9457175E+04	PSTAG	.2016599E+05
P	.3891737E+00	Q	-.1850761E-01	R	.1460749E+00	X ACCEL	-.3998381E+01
Y ACCEL	.1880693E-01	Z ACCEL	-.1027412E+02	CXB	-.1542227E+00	CYB	.7254074E-03
CZB	-.3962861E+00	CL	.3662992E+00	CD	.2159911E+00	L/D	.1695900E+01
CL-ROLL	-.1748781E-03	CM-PITCH	-.3423385E-04	CN-YAW	-.2168524E-03	PDOT	-.4753548E+00
QDOT	-.5058271E-02	RDOT	-.8194597E-01				

TIME	.1990000E+04	VEL A	.4338335E+03	GAM A	-.1150499E+02	HDG A	.1095057E+03
ALTDE	.1952227E+05	LATD	.3501123E+02	LONG	.2419862E+03	SIGMAA	.7246237E+01
BETA A	.3355688E-01	ALPHAA	.8841530E+01	YAW E	.1105849E+03	PTCH E	-.2728356E+01
ROLL E	.7114733E+01	U	-.1353141E+03	V	.7880858E+03	W	.8652953E+02
VEL R	.4362056E+03	GAM R	-.1144158E+02	HDG R	.1084512E+03	SIGMAR	.7456589E+01
BETA R	-.9995420E+00	ALPHAR	.8910881E+01	U-WIND	-.6632943E+01	V-WIND	-.4840592E+01
W-WIND	0.	SIG-VA	.2044577E-02	SIG-GA	.2116510E-03	SIG-HA	.1725662E-03
SIG-H	.4025451E+00	SIG-LA	.3331692E-05	SIG-LO	.3488701E-05	SIG-SA	.1065642E-02
SIG-BA	.1877505E-03	SIG-AA	.4407948E-03	SIG-YE	.1065642E-02	SIG-PE	.1877505E-03
SIG-RE	.4407948E-03	SIG-U	.1698317E-02	SIG-V	.2136835E-02	SIG-W	.2103024E-02
MACH A	.1473288E+01	MACH R	.1481344E+01	PINF	.6086849E+04	TEMP	.2158356E+03
RHO	.9824417E-01	Q A	.9245339E+04	Q R	.9346717E+04	PSTAG	.2016756E+05
P	.1658163E+00	Q	-.1351307E+00	R	.7157555E-01	X ACCEL	-.4057729E+01
Y ACCEL	.2693798E-01	Z ACCEL	-.1006965E+02	CXB	-.1586946E+00	CYB	.1053524E-02
CZB	-.3938162E+00	CL	.3647449E+00	CD	.2173393E+00	L/D	.1678228E+01
CL-ROLL	-.2280794E-03	CM-PITCH	-.6568158E-04	CN-YAW	-.2948182E-03	PDOT	-.6120582E+00
QDOT	-.1099674E-01	RDOT	-.1090823E+00				

TIME	.1995000E+04	VEL A	.4143976E+03	GAM A	-.1178061E+02	HDG A	.1099848E+03
ALTDE	.1909270E+05	LATD	.3500518E+02	LONG	.2420078E+03	SIGMAA	.6472211E+01
BETA A	-.1806083E+00	ALPHAA	.8450309E+01	YAW E	.1111135E+03	PTCH E	-.3402616E+01
ROLL E	.6309356E+01	U	-.1341299E+03	V	.7698661E+03	W	.8460541E+02
VEL R	.4185435E+03	GAM R	-.1166227E+02	HDG R	.1091003E+03	SIGMAR	.6651704E+01
BETA R	-.1054515E+01	ALPHAR	.8431716E+01	U-WIND	-.4516145E+01	V-WIND	-.6095909E+01
W-WIND	0.	SIG-VA	.2074166E-02	SIG-GA	.2072494E-03	SIG-HA	.1743157E-03
SIG-H	.3965786E+00	SIG-LA	.3295138E-05	SIG-LO	.3500168E-05	SIG-SA	.1068138E-02
SIG-BA	.1953802E-03	SIG-AA	.4394994E-03	SIG-YE	.1068138E-02	SIG-PE	.1953802E-03
SIG-RE	.4394994E-03	SIG-U	.1717400E-02	SIG-V	.2162346E-02	SIG-W	.2059628E-02
MACH A	.1408123E+01	MACH R	.1422210E+01	PINF	.6512710E+04	TEMP	.2155786E+03
RHO	.1052430E+00	Q A	.9036445E+04	Q R	.9218162E+04	PSTAG	.2004454E+05
P	.2648113E+00	Q	-.1251564E+00	R	.2789374E-01	X ACCEL	-.4063335E+01
Y ACCEL	.4686280E-01	Z ACCEL	-.9778464E+01	CXB	-.1625657E+00	CYB	.1874885E-02
CZB	-.3912163E+00	CL	.3630799E+00	CD	.2182907E+00	L/D	.1663286E+01
CL-ROLL	-.3379320E-03	CM-PITCH	-.2792227E-04	CN-YAW	-.2335344E-03	PDOT	-.8743178E+00
QDOT	-.4555718E-02	RDOT	-.9359967E-01				

TIME	.2000000E+04	VEL A	.3967816E+03	GAM A	-.1214299E+02	HDG A	.1108270E+03
ALTDE	.1867064E+05	LATD	.3499917E+02	LONG	.2420285E+03	SIGMAA	.5791420E+01
BETA A	.6067660E+00	ALPHAA	.8040147E+01	YAW E	.1110385E+03	PTCH E	-.4082843E+01
ROLL E	.5804147E+01	U	-.1331828E+03	V	.7522597E+03	W	.8346386E+02
VEL R	.4017493E+03	GAM R	-.1199059E+02	HDG R	.1098100E+03	SIGMAR	.6004129E+01
BETA R	-.3981934E+00	ALPHAR	.7990759E+01	U-WIND	-.4735426E+01	V-WIND	-.7170164E+01
W-WIND	0.	SIG-VA	.2105576E-02	SIG-GA	.2030709E-03	SIG-HA	.1762867E-03
SIG-H	.3907444E+00	SIG-LA	.3257280E-05	SIG-LO	.3514841E-05	SIG-SA	.1071907E-02
SIG-BA	.1989399E-03	SIG-AA	.4371636E-03	SIG-YE	.1071907E-02	SIG-PE	.1989399E-03
SIG-RE	.4371636E-03	SIG-U	.1738600E-02	SIG-V	.2189842E-02	SIG-W	.2018576E-02
MACH A	.1348929E+01	MACH R	.1365818E+01	PINF	.6960684E+04	TEMP	.2153660E+03
RHO	.1125932E+00	Q A	.8863087E+04	Q R	.9086405E+04	PSTAG	.2000648E+05
P	-.1128883E+01	Q	-.1688136E+00	R	-.1052951E+00	X ACCEL	-.3933792E+01
Y ACCEL	-.7480147E-01	Z ACCEL	-.9596518E+01	CXB	-.1604402E+00	CYB	-.3050788E-02
CZB	-.3913952E+00	CL	.3651077E+00	CD	.2136064E+00	L/D	.1709254E+01
CL-ROLL	-.7210947E-03	CM-PITCH	-.6915901E-04	CN-YAW	.4299698E-03	PDOT	-.1775660E+01
QDOT	-.9927310E-02	RDOT	.8865316E-01				

TIME	.2005000E+04	VEL A	.3808021E+03	GAM A	-.1252286E+02	HDG A	.1113572E+03
ALTDE	.1825310E+05	LATD	.3499326E+02	LONG	.2420483E+03	SIGMAA	-.7272920E-01
BETA A	-.6857004E-01	ALPHAA	.7928264E+01	YAW E	.1114153E+03	PTCH E	-.4594509E+01
ROLL E	-.8614370E-01	U	-.1290807E+03	V	.7369544E+03	W	.8256899E+02
VEL R	.3861256E+03	GAM R	-.1234747E+02	HDG R	.1100118E+03	SIGMAR	.2148098E+00
BETA R	-.1382694E+01	ALPHAR	.7754497E+01	U-WIND	-.6301170E+01	V-WIND	-.8205604E+01
W-WIND	0.	SIG-VA	.1992426E-02	SIG-GA	.2949100E-03	SIG-HA	.2776851E-03
SIG-H	.3850408E+00	SIG-LA	.3218189E-05	SIG-LO	.3532838E-05	SIG-SA	.1074302E-02
SIG-BA	.9655721E-04	SIG-AA	.3714103E-03	SIG-YE	.1074302E-02	SIG-PE	.9655721E-04
SIG-RE	.3714103E-03	SIG-U	.1773730E-02	SIG-V	.2200719E-02	SIG-W	.1978656E-02
MACH A	.1295117E+01	MACH R	.1313222E+01	PINF	.7434684E+04	TEMP	.2151955E+03
RHO	.1203557E+00	Q A	.8726401E+04	Q R	.8972090E+04	PSTAG	.2005839E+05
P	-.1031740E+01	Q	-.1403247E+00	R	.1801224E+00	X ACCEL	-.3945634E+01
Y ACCEL	-.1413805E+00	Z ACCEL	-.9681341E+01	CXB	-.1634225E+00	CYB	-.5855781E-02
CZB	-.4009874E+00	CL	.3746132E+00	CD	.2171699E+00	L/D	.1724977E+01
CL-ROLL	.2229170E-03	CM-PITCH	-.7155364E-03	CN-YAW	.2668009E-03	PDOT	.5636582E+00
QDOT	-.1183112E+00	RDOT	.9230952E-01				

TIME	.2010000E+04	VEL A	.3653351E+03	GAM A	-.1286983E+02	HDG A	.1121994E+03
ALTDE	.1784114E+05	LATD	.3498758E+02	LONG	.2420672E+03	SIGMAA	.3307422E+01
BETA A	.6674901E+00	ALPHAA	.7901414E+01	YAW E	.1119930E+03	PTCH E	-.4943064E+01
ROLL E	.3385551E+01	U	-.1244710E+03	V	.7218003E+03	W	.8137354E+02
VEL R	.3704251E+03	GAM R	-.1269001E+02	HDG R	.1101473E+03	SIGMAR	.3761062E+01
BETA R	-.1340977E+01	ALPHAR	.7845323E+01	U-WIND	-.1009617E+02	V-WIND	-.9506961E+01
W-WIND	0.	SIG-VA	.2012500E-02	SIG-GA	.2891868E-03	SIG-HA	.2807280E-03
SIG-H	.3794619E+00	SIG-LA	.3177987E-05	SIG-LO	.3554216E-05	SIG-SA	.1081166E-02
SIG-BA	.8217164E-04	SIG-AA	.3664936E-03	SIG-YE	.1081166E-02	SIG-PE	.8217164E-04
SIG-RE	.3664936E-03	SIG-U	.1806533E-02	SIG-V	.2208432E-02	SIG-W	.1939181E-02
MACH A	.1242883E+01	MACH R	.1260200E+01	PINF	.7934391E+04	TEMP	.2150673E+03
RHO	.1285217E+00	Q A	.8576876E+04	Q R	.8817537E+04	PSTAG	.2011405E+05
P	.6166010E+00	Q	-.7743112E-02	R	-.5125638E-01	X ACCEL	-.3970615E+01
Y ACCEL	.1016843E+00	Z ACCEL	-.9731308E+01	CXB	-.1673029E+00	CYB	.4284494E-02
CZB	-.4100311E+00	CL	.3831393E+00	CD	.2220810E+00	L/D	.1725223E+01
CL-ROLL	-.4252888E-03	CM-PITCH	-.3197142E-03	CN-YAW	-.9418129E-04	PDOT	-.1033093E+01
QDOT	-.5113030E-01	RDOT	-.5227160E-01				

TIME	.2015000E+04	VEL A	.3505834E+03	GAM A	-.1303469E+02	HDG A	.1124491E+03
ALTDE	.1743761E+05	LATD	.3498207E+02	LONG	.2420853E+03	SIGMAA	-.3797598E+01
BETA A	-.1610649E+00	ALPHAA	.7897338E+01	YAW E	.1120854E+03	PTCH E	-.5143877E+01
ROLL E	-.3751127E+01	U	-.1192016E+03	V	.7076979E+03	W	.7907094E+02
VEL R	.3552329E+03	GAM R	-.1286114E+02	HDG R	.1101326E+03	SIGMAR	-.3285490E+01
BETA R	-.2403601E+01	ALPHAR	.7584633E+01	U-WIND	-.1122345E+02	V-WIND	-.9492901E+01
W-WIND	0.	SIG-VA	.2030959E-02	SIG-GA	.2835796E-03	SIG-HA	.2851837E-03
SIG-H	.3740006E+00	SIG-LA	.3136776E-05	SIG-LO	.3578954E-05	SIG-SA	.1083845E-02
SIG-BA	.1226486E-03	SIG-AA	.3592231E-03	SIG-YE	.1083845E-02	SIG-PE	.1226486E-03
SIG-RE	.3592231E-03	SIG-U	.1852732E-02	SIG-V	.2212430E-02	SIG-W	.1899937E-02
MACH A	.1192936E+01	MACH R	.1208757E+01	PINF	.8456763E+04	TEMP	.2149812E+03
RHO	.1370380E+00	Q A	.8421579E+04	Q R	.8646434E+04	PSTAG	.2018664E+05
P	-.1464927E+01	Q	-.6537198E-01	R	.2491624E+00	X ACCEL	-.3915868E+01
Y ACCEL	-.3196876E+00	Z ACCEL	-.9969964E+01	CXB	-.1680175E+00	CYB	-.1371679E-01
CZB	-.4277797E+00	CL	.4006372E+00	CD	.2252003E+00	L/D	.1779026E+01
CL-ROLL	.5843742E-03	CM-PITCH	.8041141E-04	CN-YAW	.3662288E-03	PDOT	.1407110E+01
QDOT	.5773495E-02	RDOT	.1391220E+00				

TIME	.2020000E+04	VEL A	.3369712E+03	GAM A	-.1308595E+02	HDG A	.1120796E+03
ALTDE	.1704720E+05	LATD	.3497690E+02	LONG	.2421027E+03	SIGMAA	.3507283E+01
BETA A	-.6991804E+00	ALPHAA	.7933779E+01	YAW E	.1132595E+03	PTCH E	-.5207131E+01
ROLL E	.3270785E+01	U	-.1124748E+03	V	.6942423E+03	W	.7627185E+02
VEL R	.3400402E+03	GAM R	-.1296186E+02	HDG R	.1098414E+03	SIGMAR	.4012343E+01
BETA R	-.2883255E+01	ALPHAR	.7952975E+01	U-WIND	-.1086490E+02	V-WIND	-.7644520E+01
W-WIND	0.	SIG-VA	.2044263E-02	SIG-GA	.2779594E-03	SIG-HA	.2894127E-03
SIG-H	.3686523E+00	SIG-LA	.3094675E-05	SIG-LO	.3606938E-05	SIG-SA	.1093936E-02
SIG-BA	.8655603E-04	SIG-AA	.3521711E-03	SIG-YE	.1093936E-02	SIG-PE	.8655603E-04
SIG-RE	.3521711E-03	SIG-U	.1900077E-02	SIG-V	.2208813E-02	SIG-W	.1860626E-02
MACH A	.1146398E+01	MACH R	.1157182E+01	PINF	.8995100E+04	TEMP	.2149362E+03
RHO	.1457920E+00	Q A	.8272397E+04	Q R	.8428768E+04	PSTAG	.2029480E+05
P	.1028611E+01	Q	.5227375E-01	R	.6083175E-02	X ACCEL	-.3888730E+01
Y ACCEL	.1596093E+00	Z ACCEL	-.1011410E+02	CXB	-.1698414E+00	CYB	.6970982E-02
CZB	-.4417365E+00	CL	.4140653E+00	CD	.2291879E+00	L/D	.1806663E+01
CL-ROLL	-.5218885E-03	CM-PITCH	-.2206967E-03	CN-YAW	-.1480018E-03	PDOT	-.1224479E+01
QDOT	-.3395037E-01	RDOT	-.7213528E-01				

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TIME	.2025000E+04	VEL A	.3217180E+03	GAM A	-.1308594E+02	HDG A	.1126897E+03
ALTDE	.1667308E+05	LATD	.3497189E+02	LONG	.2421194E+03	SIGMAA	.1969944E+01
BETA A	-.4783544E-01	ALPHAA	.7878186E+01	YAW E	.1130083E+03	PTCH E	-.5213884E+01
ROLL E	.1915861E+01	U	-.1099989E+03	V	.6794657E+03	W	.7284092E+02
VEL R	.3249168E+03	GAM R	-.1295486E+02	HDG R	.1103276E+03	SIGMAR	.2501334E+01
BETA R	-.2352580E+01	ALPHAR	.7836992E+01	U-WIND	-.1087794E+02	V-WIND	-.7814981E+01
W-WIND	0.	SIG-VA	.2073124E-02	SIG-GA	.2723841E-03	SIG-HA	.2947808E-03
SIG-H	.3634105E+00	SIG-LA	.3051822E-05	SIG-LO	.3638167E-05	SIG-SA	.1100683E-02
SIG-BA	.9253504E-04	SIG-AA	.3437282E-03	SIG-YE	.1100683E-02	SIG-PE	.9253504E-04
SIG-RE	.3437282E-03	SIG-U	.1945242E-02	SIG-V	.2226484E-02	SIG-W	.1823862E-02
MACH A	.1094848E+01	MACH R	.1105734E+01	PINF	.9543231E+04	TEMP	.2149291E+03
RHO	.1546812E+00	Q A	.8004939E+04	Q R	.8164912E+04	PSTAG	.2022784E+05
P	-.2407875E+00	Q	.3474386E-01	R	-.2679544E-01	X ACCEL	-.3850037E+01
Y ACCEL	.8439645E-01	Z ACCEL	-.1000330E+02	CXB	-.1737495E+00	CYB	.3808753E-02
CZB	-.4514420E+00	CL	.4233658E+00	CD	.2339876E+00	L/D	.1809352E+01
CL-ROLL	.1894708E-03	CM-PITCH	.2676624E-03	CN-YAW	.7329252E-04	PDOT	.4312141E+00
QDOT	.3951173E-01	RDOT	.3067619E-01				

TIME	.2030000E+04	VEL A	.3065974E+03	GAM A	-.1309452E+02	HDG A	.1132011E+03
ALTDE	.1631550E+05	LATD	.3496702E+02	LONG	.2421352E+03	SIGMAA	.2005580E+01
BETA A	.1981190E+00	ALPHAA	.8154524E+01	YAW E	.1132898E+03	PTCH E	-.4938080E+01
ROLL E	.2005758E+01	U	-.1068248E+03	V	.6659209E+03	W	.6946217E+02
VEL R	.3107104E+03	GAM R	-.1291817E+02	HDG R	.1106547E+03	SIGMAR	.2577336E+01
BETA R	-.2287923E+01	ALPHAR	.8077528E+01	U-WIND	-.1082120E+02	V-WIND	-.8905585E+01
W-WIND	0.	SIG-VA	.2099523E-02	SIG-GA	.2670138E-03	SIG-HA	.3010873E-03
SIG-H	.3582705E+00	SIG-LA	.3008414E-05	SIG-LO	.3672632E-05	SIG-SA	.1108693E-02
SIG-BA	.9407041E-04	SIG-AA	.3326793E-03	SIG-YE	.1108693E-02	SIG-PE	.9407041E-04
SIG-RE	.3326793E-03	SIG-U	.1999822E-02	SIG-V	.2239888E-02	SIG-W	.1787940E-02
MACH A	.1043325E+01	MACH R	.1057321E+01	PINF	.1009836E+05	TEMP	.2149561E+03
RHO	.1636584E+00	Q A	.7692104E+04	Q R	.7899867E+04	PSTAG	.2011902E+05
P	.2735047E+00	Q	-.7537065E-01	R	.7555358E-01	X ACCEL	-.3507138E+01
Y ACCEL	.1064820E+00	Z ACCEL	-.1010328E+02	CXB	-.1646933E+00	CYB	.5000338E-02
CZB	-.4744443E+00	CL	.4462866E+00	CD	.2303248E+00	L/D	.1937640E+01
CL-ROLL	.3681452E-03	CM-PITCH	-.1123207E-02	CN-YAW	-.3621820E-03	PDOT	.7795603E+00
QDOT	-.1587107E+00	RDOT	-.7867159E-01				

TIME	.2035000E+04	VEL A	.2933149E+03	GAM A	-.1404553E+02	HDG A	.1136138E+03
ALTDE	.1596711E+05	LATD	.3496229E+02	LONG	.2421503E+03	SIGMAA	.4799384E+00
BETA A	.1162512E+00	ALPHAA	.6394346E+01	YAW E	.1135512E+03	PICH E	-.7650431E+01
ROLL E	.4982378E+00	U	-.1032778E+03	V	.6544089E+03	W	.7118546E+02
VEL R	.2994085E+03	GAM R	-.1375399E+02	HDG R	.1108009E+03	SIGMAR	.1150271E+01
BETA R	-.2618116E+01	ALPHAR	.6141704E+01	U-WIND	-.1070268E+02	V-WIND	-.1114760E+02
W-WIND	0.	SIG-VA	.2119854E-02	SIG-GA	.2622096E-03	SIG-HA	.3068622E-03
SIG-H	.3532364E+00	SIG-LA	.2964741E-05	SIG-LO	.3710306E-05	SIG-SA	.1105652E-02
SIG-BA	.1010546E-03	SIG-AA	.3503981E-03	SIG-YE	.1105652E-02	SIG-PE	.1010546E-03
SIG-RE	.3503981E-03	SIG-U	.2051093E-02	SIG-V	.2247237E-02	SIG-W	.1755767E-02
MACH A	.9979896E+00	MACH R	.1018723E+01	PINF	.1067023E+05	TEMP	.2150149E+03
RHO	.1728790E+00	Q A	.7436705E+04	Q R	.7748908E+04	PSTAG	.2015070E+05
P	-.3366860E+00	Q	-.7668317E+00	R	.2933004E+00	X ACCEL	-.3299239E+01
Y ACCEL	-.1942926E+00	Z ACCEL	-.7928656E+01	CXB	-.1602339E+00	CYB	-.9436192E-02
CZB	-.3850704E+00	CL	.3648294E+00	CD	.2021227E+00	L/D	.1804990E+01
CL-ROLL	.5244458E-03	CM-PITCH	-.5603030E-03	CN-YAW	.1297553E-03	PDOT	.1106662E+01
QDOT	-.7826923E-01	RDOT	.5586721E-01				

TIME	.2040000E+04	VEL A	.2843617E+03	GAM A	-.1615011E+02	HDG A	.1141546E+03
ALTDE	.1558808E+05	LATD	.3495771E+02	LONG	.2421649E+03	SIGMAA	.1991078E+01
BETA A	.6557514E+00	ALPHAA	.7069685E+01	YAW E	.1137441E+03	PTCH E	-.9061528E+01
ROLL E	.2121342E+01	U	-.1012828E+03	V	.6437918E+03	W	.7909658E+02
VEL R	.2911475E+03	GAM R	-.1576378E+02	HDG R	.1111905E+03	SIGMAR	.2802519E+01
BETA R	-.2207809E+01	ALPHAR	.6802960E+01	U-WIND	-.1048595E+02	V-WIND	-.1202675E+02
W-WIND	0.	SIG-VA	.2140042E-02	SIG-GA	.2579705E-03	SIG-HA	.3111968E-03
SIG-H	.3483070E+00	SIG-LA	.2921458E-05	SIG-LO	.3751174E-05	SIG-SA	.1108270E-02
SIG-BA	.9697268E-04	SIG-AA	.3555834E-03	SIG-YE	.1108270E-02	SIG-PE	.9697268E-04
SIG-RE	.3555834E-03	SIG-U	.2086792E-02	SIG-V	.2258752E-02	SIG-W	.1728424E-02
MACH A	.9672994E+00	MACH R	.9903825E+00	PINF	.1132904E+05	TEMP	.2151159E+03
RHO	.1834669E+00	Q A	.7417706E+04	Q R	.7775955E+04	PSTAG	.2065102E+05
P	-.1495759E+01	Q	.1982409E+00	R	-.2825154E+00	X ACCEL	-.3168834E+01
Y ACCEL	.1528661E+00	Z ACCEL	-.8544118E+01	CYB	-.1542764E+00	CYB	.7442369E-02
CZB	-.4159751E+00	CL	.3938247E+00	CD	.2043002E+00	L/D	.1927677E+01
CL-ROLL	-.2561442E-03	CM-PITCH	-.6094701E-03	CN-YAW	.2454345E-04	PDOT	-.5339949E+00
QDOT	-.7739944E-01	RDOT	-.1781993E-02				

TIME	.2045000E+04	VEL A	.2784001E+03	GAM A	-.1673678E+02	HDG A	.1141351E+03
ALTDE	.1518567E+05	LATD	.3495321E+02	LONG	.2421790E+03	SIGMAA	-.4521590E+00
BETA A	.5069316E+00	ALPHAA	.8839242E+01	YAW E	.1135593E+03	PTCH E	-.7900984E+01
ROLL E	-.2897530E+00	U	-.9885143E+02	V	.6379229E+03	W	.8017238E+02
VEL R	.2853440E+03	GAM R	-.1631796E+02	HDG R	.1111598E+03	SIGMAR	.3876826E+00
BETA R	-.2345241E+01	ALPHAR	.8418898E+01	U-WIND	-.1016125E+02	V-WIND	-.1208516E+02
W-WIND	0.	SIG-VA	.2168520E-02	SIG-GA	.2540124E-03	SIG-HA	.3273820E-03
SIG-H	.3435127E+00	SIG-LA	.2878750E-05	SIG-LO	.3795187E-05	SIG-SA	.1119134E-02
SIG-BA	.1072997E-03	SIG-AA	.3361801E-03	SIG-YE	.1119134E-02	SIG-PE	.1072997E-03
SIG-RE	.3361801E-03	SIG-U	.2221835E-02	SIG-V	.2267484E-02	SIG-W	.1695873E-02
MACH A	.9466893E+00	MACH R	.9703016E+00	PINF	.1207271E+05	TEMP	.2152664E+03
RHO	.1953735E+00	Q A	.7571369E+04	Q R	.7953768E+04	PSTAG	.2149897E+05
P	-.6155143E+00	Q	.9395484E+00	R	-.8122503E-01	X ACCEL	-.2393944E+01
Y ACCEL	-.6916890E-01	Z ACCEL	-.1047850E+02	CXB	-.1141707E+00	CYB	-.3298768E-02
CZB	-.4997352E+00	CL	.4762562E+00	CD	.1896054E+00	L/D	.2511829E+01
CL-ROLL	-.3298731E-03	CM-PITCH	.9767189E-03	CN-YAW	.9020226E-04	PDOT	-.6991107E+00
QDOT	.1367386E+00	RDOT	.1595652E-01				

TIME	.2050000E+04	VEL A	.2703703E+03	GAM A	-.1538831E+02	HDG A	.1138731E+03
ALTDE	.1480298E+05	LATD	.3494884E+02	LONG	.2421928E+03	SIGMAA	-.5659952E-01
BETA A	-.1275638E+00	ALPHAA	.9927660E+01	YAW E	.1139896E+03	PTCH E	-.5460493E+01
ROLL E	-.8882358E-01	U	-.9573143E+02	V	.6333828E+03	W	.7174528E+02
VEL R	.2779151E+03	GAM R	-.1496064E+02	HDG R	.1108884E+03	SIGMAR	.7135938E+00
BETA R	-.3010645E+01	ALPHAR	.9516502E+01	U-WIND	-.9768053E+01	V-WIND	-.1247357E+02
W-WIND	0.	SIG-VA	.2204015E-02	SIG-GA	.2496989E-03	SIG-HA	.3520973E-03
SIG-H	.3389075E+00	SIG-LA	.2836972E-05	SIG-LO	.3842066E-05	SIG-SA	.1134630E-02
SIG-BA	.1087343E-03	SIG-AA	.3043565E-03	SIG-YE	.1134630E-02	SIG-PE	.1087343E-03
SIG-RE	.3043565E-03	SIG-U	.2424102E-02	SIG-V	.2273905E-02	SIG-W	.1657145E-02
MACH A	.9189886E+00	MACH R	.9446335E+00	PINF	.1282467E+05	TEMP	.2154517E+03
RHO	.2073641E+00	Q A	.7579163E+04	Q R	.8008067E+04	PSTAG	.2214508E+05
P	-.1423618E+00	Q	.3144342E+00	R	.2525563E-01	X ACCEL	-.2414813E+01
Y ACCEL	-.8202720E-01	Z ACCEL	-.1164325E+02	CXB	-.1150339E+00	CYB	-.3907509E-02
CZB	-.5546466E+00	CL	.5265091E+00	CD	.2089350E+00	L/D	.2519966E+01
CL-ROLL	-.3934411E-03	CM-PITCH	-.1489594E-02	CN-YAW	.3591921E-03	PDOT	-.8223315E+00
QDOT	-.2078477E+00	RDOT	.7640728E-01				

TIME	.2055000E+04	VEL A	.2611066E+03	GAM A	-.1403255E+02	HDG A	.1141291E+03
ALTDE	.1446655E+05	LATD	.3494459E+02	LONG	.2422063E+03	SIGMAA	.1516211E+01
BETA A	.2896128E+00	ALPHAA	.8597401E+01	YAW E	.1140692E+03	PTCH E	-.5430506E+01
ROLL E	.1548133E+01	U	-.9401397E+02	V	.6269464E+03	W	.6331130E+02
VEL R	.2694148E+03	GAM R	-.1359136E+02	HDG R	.1110394E+03	SIGMAR	.2246726E+01
BETA R	-.2723573E+01	ALPHAR	.8255036E+01	U-WIND	-.9539392E+01	V-WIND	-.1323053E+02
W-WIND	0.	SIG-VA	.2218603E-02	SIG-GA	.3616794E-03	SIG-HA	.5480008E-03
SIG-H	.3344815E+00	SIG-LA	.2796964E-05	SIG-LO	.3891728E-05	SIG-SA	.1140570E-02
SIG-BA	.1050537E-03	SIG-AA	.2820657E-03	SIG-YE	.1140570E-02	SIG-PE	.1050537E-03
SIG-PE	.2820657E-03	SIG-U	.2602237E-02	SIG-V	.2288344E-02	SIG-W	.1620132E-02
MACH A	.8870947E+00	MACH R	.9153214E+00	PINF	.1352377E+05	TEMP	.2156493E+03
RHO	.2184676E+00	Q A	.7447194E+04	Q R	.7928663E+04	PSTAG	.2255659E+05
P	-.6134603E+00	Q	-.7158232E+00	R	-.4090868E-01	X ACCEL	-.2173608E+01
Y ACCEL	-.1059616E+00	Z ACCEL	-.9962768E+01	CXB	-.1053674E+00	CYB	-.5136573E-02
CZB	-.4829533E+00	CL	.4617750E+00	CD	.1763804E+00	L/D	.2618064E+01
CL-ROLL	-.5120493E-03	CM-PITCH	.6330987E-03	CN-YAW	.5431202E-03	PDOT	-.1047727E+01
QDOT	.8701274E-01	RDOT	.1102002E+00				

TIME	.2060000E+04	VEL A	.2567462E+03	GAM A	-.1480892E+02	HDG A	.1142634E+03
ALTDE	.1414455E+05	LATD	.3494038E+02	LONG	.2422195E+03	SIGMAA	.1303265E+01
BETA A	.2442769E-01	ALPHAA	.7852711E+01	YAW E	.1144184E+03	PTCH E	-.6957640E+01
ROLL E	.1275609E+01	U	-.9310544E+02	V	.6219621E+03	W	.6562337E+02
VEL R	.2651429E+03	GAM R	-.1432974E+02	HDG R	.1112494E+03	SIGMAR	.2051721E+01
BETA R	-.2905453E+01	ALPHAR	.7459161E+01	U-WIND	-.8895352E+01	V-WIND	-.1313594E+02
W-WIND	0.	SIG-VA	.2252048E-02	SIG-GA	.3571037E-03	SIG-HA	.5763670E-03
SIG-H	.3302241E+00	SIG-LA	.2759954E-05	SIG-LO	.3944276E-05	SIG-SA	.1142728E-02
SIG-BA	.1076207E-03	SIG-AA	.2887357E-03	SIG-YE	.1142728E-02	SIG-PE	.1076207E-03
SIG-RE	.2887357E-03	SIG-U	.2752161E-02	SIG-V	.2303033E-02	SIG-W	.1589908E-02
MACH A	.8718359E+00	MACH R	.9003486E+00	PINF	.1422792E+05	TEMP	.2158693E+03
RHO	.2296083E+00	Q A	.7567731E+04	Q R	.8070817E+04	PSTAG	.2334806E+05
P	.4054155E+00	Q	-.4298556E-01	R	.1105560E+00	X ACCEL	-.2040676E+01
Y ACCEL	-.1033027E-01	Z ACCEL	-.9287016E+01	CXB	-.9733805E-01	CYB	-.4927426E-03
CZB	-.4429806E+00	CL	.4255276E+00	CD	.1569484E+00	L/D	.2711258E+01
CL-ROLL	.1120731E-03	CM-PITCH	-.2676134E-02	CN-YAW	-.1708187E-03	PDOT	.2304729E+00
QDOT	-.3720805E+00	RDOT	-.3945800E-01				

TIME	.2065000E+04	VEL A	.2534172E+03	GAM A	-.1519175E+02	HDG A	.1144313E+03
ALTDE	.1381192E+05	LATD	.3493620E+02	LONG	.2422325E+03	SIGMAA	.3769813E+01
BETA A	-.3931694E-01	ALPHAA	.8077064E+01	YAW E	.1150038E+03	PICH E	-.7134115E+01
ROLL E	.3655911E+01	U	-.9324352E+02	V	.6176492E+03	W	.6640806E+02
VEL R	.2615027E+03	GAM R	-.1471125E+02	HDG R	.1116326E+03	SIGMAR	.4485035E+01
BETA R	-.2770800E+01	ALPHAR	.7792461E+01	U-WIND	-.7907355E+01	V-WIND	-.1245258E+02
W-WIND	0.	SIG-VA	.2288737E-02	SIG-GA	.3529284E-03	SIG-HA	.6100019E-03
SIG-H	.3261447E+00	SIG-LA	.2727237E-05	SIG-LO	.3999730E-05	SIG-SA	.1148622E-02
SIG-BA	.1193310E-03	SIG-AA	.2818545E-03	SIG-YE	.1148622E-02	SIG-PE	.1193310E-03
SIG-RE	.2818545E-03	SIG-U	.2923884E-02	SIG-V	.2323432E-02	SIG-W	.1559630E-02
MACH A	.8614669E+00	MACH R	.8889527E+00	PINF	.1499380E+05	TEMP	.2154008E+03
RHO	.2424943E+00	Q A	.7786526E+04	Q R	.8291323E+04	PSTAG	.2433722E+05
P	.1062334E+01	Q	.1395160E-01	R	.1234197E+00	X ACCEL	-.1924891E+01
Y ACCEL	.1240498E+00	Z ACCEL	-.9731118E+01	CXB	-.8922603E-01	CYB	.5750179E-02
CZB	-.4510744E+00	CL	.4340630E+00	CD	.1517191E+00	L/D	.2860966E+01
CL-ROLL	.1284154E-03	CM-PITCH	-.7808432E-03	CN-YAW	-.4361406E-03	PDOT	.2593597E+00
QDOT	-.1102869E+00	RDOT	-.1126421E+00				

TIME	.2070000E+04	VEL A	.2506067E+03	GAM A	-.1507957E+02	HDG A	.1143659E+03
ALTDE	.1348130E+05	LATD	.3493198E+02	LONG	.2422452E+03	SIGMAA	-.1027267E+01
BETA A	-.3617507E+00	ALPHAA	.7837792E+01	YAW E	.1145859E+03	PTCH E	-.7236451E+01
ROLL E	-.1094718E+01	U	-.9341992E+02	V	.6135745E+03	W	.6519791E+02
VEL R	.2576005E+03	GAM R	-.1466086E+02	HDG R	.1120156E+03	SIGMAR	-.4357026E+00
BETA R	-.2627833E+01	ALPHAR	.7390048E+01	U-WIND	-.6410930E+01	V-WIND	-.1061692E+02
W-WIND	0.	SIG-VA	.2325702E-02	SIG-GA	.3487913E-03	SIG-HA	.6463127E-03
SIG-H	.3222548E+00	SIG-LA	.2700095E-05	SIG-LO	.4058154E-05	SIG-SA	.1156788E-02
SIG-BA	.1106020E-03	SIG-AA	.2749589E-03	SIG-YE	.1156788E-02	SIG-PE	.1106020E-03
SIG-RE	.2749589E-03	SIG-U	.3106807E-02	SIG-V	.2344349E-02	SIG-W	.1528464E-02
MACH A	.8534320E+00	MACH R	.8772488E+00	PINF	.1579905E+05	TEMP	.2146347E+03
RHO	.2564297E+00	Q A	.8052368E+04	Q R	.8508076E+04	PSTAG	.2542953E+05
P	-.1434383E+01	Q	-.2672242E-01	R	-.1630101E+00	X ACCEL	-.1993312E+01
Y ACCEL	-.6236193E-01	Z ACCEL	-.9769050E+01	CXB	-.8933795E-01	CYB	-.2794990E-02
CZB	-.4378376E+00	CL	.4215645E+00	CD	.1482109E+00	L/D	.2844356E+01
CL-ROLL	-.4251899E-03	CM-PITCH	.6985724E-03	CN-YAW	.1151737E-03	PDOT	-.9585836E+00
QDOT	.1063831E+00	RDOT	.9382160E-02				

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*******************************************************************************************
*   METBET1 USING LAIRS(USE8.10/81    ),AMABETH,NEO105 DYNAM. DATA              PAGE   42  *
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TIME	.2075000E+04	VEL A	.2467664E+03	GAM A	-.1503849E+02	HDG A	.1136100E+03
ALTDE	.1315710E+05	LATD	.3492785E+02	LONG	.2422578E+03	SIGMAA	-.3702808E+01
BETA A	-.4605349E+00	ALPHAA	.7466637E+01	YAW E	.1135846E+03	PTCH E	-.7557783E+01
ROLL E	-.3727373E+01	U	-.9002325E+02	V	.6115245E+03	W	.6402793E+02
VEL R	.2542455E+03	GAM R	-.1458613E+02	HDG R	.1114613E+03	SIGMAR	-.3168323E+01
BETA R	-.2507079E+01	ALPHAR	.6890493E+01	U-WIND	-.5424166E+01	V-WIND	-.1062500E+02
W-WIND	0.	SIG-VA	.2357851E-02	SIG-GA	.3447386E-03	SIG-HA	.6830756E-03
SIG-H	.3185459E+00	SIG-LA	.2680158E-05	SIG-LO	.4119154E-05	SIG-SA	.1163146E-02
SIG-BA	.1145725E-03	SIG-AA	.2693560E-03	SIG-YE	.1163146E-02	SIG-PE	.1145725E-03
SIG-RE	.2693560E-03	SIG-U	.3306287E-02	SIG-V	.2340026E-02	SIG-W	.1495093E-02
MACH A	.8412445E+00	MACH R	.8667416E+00	PINF	.1663314E+05	TEMP	.2141804E+03
RHO	.2705402E+00	Q A	.8237086E+04	Q R	.8743963E+04	PSTAG	.2643572E+05
P	-.2632343E+00	Q	-.2173863E+00	R	-.2839084E+00	X ACCEL	-.1794663E+01
Y ACCEL	.7561377E-01	Z ACCEL	-.9617481E+01	CXB	-.7862302E-01	CYB	.3312590E-02
CZB	-.4213356E+00	CL	.4075460E+00	CD	.1327084E+00	L/D	.3070988E+01
CL-ROLL	-.3168829E-04	CM-PITCH	-.4233104E-03	CN-YAW	-.1393408E-03	PDOT	-.8142053E-01
QDOT	-.6297961E-01	RDOT	-.4281088E-01				

TIME	.2080000E+04	VEL A	.2432110E+03	GAM A	-.1555948E+02	HDG A	.1132133E+03
ALTDE	.1283252E+05	LATD	.3492387E+02	LONG	.2422702E+03	SIGMAA	-.1413642E+01
BETA A	-.9262881E-01	ALPHAA	.7261181E+01	YAW E	.1131256E+03	PTCH E	-.8298216E+01
ROLL E	-.1401352E+01	U	-.8758901E+02	V	.6102045E+03	W	.6523857E+02
VEL R	.2525125E+03	GAM R	-.1497264E+02	HDG R	.1110425E+03	SIGMAR	-.8544291E+00
BETA R	-.2174820E+01	ALPHAR	.6632998E+01	U-WIND	-.4760730E+01	V-WIND	-.1234213E+02
W-WIND	0.	SIG-VA	.2392834E-02	SIG-GA	.3415451E-03	SIG-HA	.7215041E-03
SIG-H	.3150216E+00	SIG-LA	.2669277E-05	SIG-LO	.4182462E-05	SIG-SA	.1168285E-02
SIG-BA	.1165454E-03	SIG-AA	.2686801E-03	SIG-YE	.1168285E-02	SIG-PE	.1165454E-03
SIG-RE	.2686801E-03	SIG-U	.3510298E-02	SIG-V	.2340284E-02	SIG-W	.1464186E-02
MACH A	.8294589E+00	MACH R	.8611811E+00	PINF	.1751372E+05	TEMP	.2140075E+03
RHO	.2850931E+00	Q A	.8431853E+04	Q R	.9089128E+04	PSTAG	.2750062E+05
P	.1563352E+00	Q	.4758214E-02	R	.8970993E-01	X ACCEL	-.1847431E+01
Y ACCEL	-.3045035E-01	Z ACCEL	-.9556730E+01	CXB	-.7905727E-01	CYB	-.1303064E-02
CZB	-.4089618E+00	CL	.3956898E+00	CD	.1301130E+00	L/D	.3041125E+01
CL-ROLL	.1670700E-03	CM-PITCH	-.6716754E-03	CN-YAW	.2931866E-03	PDOT	.4132053E+00
QDOT	-.1040161E+00	RDOT	.9590465E-01				

TIME	.2085000E+04	VEL A	.2409390E+03	GAM A	-.1601641E+02	HDG A	.1126823E+03
ALTDE	.1250274E+05	LATD	.3491996E+02	LONG	.2422826E+03	SIGMAA	-.5870403E+01
BETA A	-.6365503E+00	ALPHAA	.6907559E+01	YAW E	.1126052E+03	PTCH E	-.9080133E+01
ROLL E	-.5892028E+01	U	-.8548966E+02	V	.6089521E+03	W	.6647812E+02
VEL R	.2509870E+03	GAM R	-.1535904E+02	HDG R	.1106850E+03	SIGMAR	-.5353229E+01
BETA R	-.2486041E+01	ALPHAR	.6065087E+01	U-WIND	-.3814997E+01	V-WIND	-.1274656E+02
W-WIND	0.	SIG-VA	.2426988E-02	SIG-GA	.3385385E-03	SIG-HA	.7600686E-03
SIG-H	.3116871E+00	SIG-LA	.2669138E-05	SIG-LO	.4248111E-05	SIG-SA	.1172957E-02
SIG-BA	.1235024E-03	SIG-AA	.2672353E-03	SIG-YE	.1172957E-02	SIG-PE	.1235024E-03
SIG-RE	.2672353E-03	SIG-U	.3712119E-02	SIG-V	.2340617E-02	SIG-W	.1433975E-02
MACH A	.8215176E+00	MACH R	.8557778E+00	PINF	.1845644E+05	TEMP	.2141079E+03
RHO	.3002981E+00	Q A	.8716390E+04	Q R	.9458558E+04	PSTAG	.2874779E+05
P	-.1550992E+01	Q	.9084157E-01	R	-.3275789E+00	X ACCEL	-.1870146E+01
Y ACCEL	-.1227839E+00	Z ACCEL	-.9480576E+01	CXB	-.7740884E-01	CYB	-.5082258E-02
CZB	-.3924189E+00	CL	.3802607E+00	CD	.1240423E+00	L/D	.3065572E+01
CL-ROLL	.7692374E-04	CM-PITCH	.3588867E-03	CN-YAW	-.2023607E-03	PDOT	.1773892E+00
QDOT	.6467614E-01	RDOT	-.5532488E-01				

TIME	.2090000E+04	VEL A	.2386139E+03	GAM A	-.1612555E+02	HDG A	.1105806E+03
ALTDE	.1216971E+05	LATD	.3491626E+02	LONG	.2422950E+03	SIGMAA	-.1476539E+02
BETA A	.5043347E-01	ALPHAA	.7072429E+01	YAW E	.1087094E+03	PTCH E	-.9292217E+01
ROLL E	-.1434985E+02	U	-.7784452E+02	V	.6096851E+03	W	.6627336E+02
VEL R	.2491031E+03	GAM R	-.1542923E+02	HDG R	.1089161E+03	SIGMAR	-.1432475E+02
BETA R	-.1325200E+01	ALPHAR	.5996162E+01	U-WIND	-.2733885E+01	V-WIND	-.1256091E+02
W-WIND	0.	SIG-VA	.2466302E-02	SIG-GA	.3354107E-03	SIG-HA	.7961144E-03
SIG-H	.3085274E+00	SIG-LA	.2681660E-05	SIG-LO	.4315508E-05	SIG-SA	.1174441E-02
SIG-BA	.1691499E-03	SIG-AA	.2521730E-03	SIG-YE	.1174441E-02	SIG-PE	.1691499E-03
SIG-RE	.2521730E-03	SIG-U	.3927036E-02	SIG-V	.2304315E-02	SIG-W	.1399493E-02
MACH A	.8128871E+00	MACH R	.8486204E+00	PINF	.1945894E+05	TEMP	.2144783E+03
RHO	.3160625E+00	Q A	.8997759E+04	Q R	.9806203E+04	PSTAG	.3004640E+05
P	-.1736634E+01	Q	.2710782E+00	R	-.1073369E+01	X ACCEL	-.2080245E+01
Y ACCEL	.1054240E+00	Z ACCEL	-.1002652E+02	CXB	-.8340399E-01	CYB	.4226800E-02
CZB	-.4019966E+00	CL	.3886689E+00	CD	.1322648E+00	L/D	.2938566E+01
CL-ROLL	-.5901953E-03	CM-PITCH	.2601415E-03	CN-YAW	-.1016005E-03	PDOT	-.1500929E+01
QDOT	.7193142E-01	RDOT	-.6000035E-01				

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* METBET1 USING LAIRS(USE8,10/81     ),AMABETH,NE0105 DYNAM. DATA                PAGE   44  *
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TIME	.2095000E+04	VEL A	.2359809E+03	GAM A	-.1622100E+02	HDG A	.1058486E+03
ALTDE	.1183951E+05	LATD	.3491311E+02	LONG	.2423075E+03	SIGMAA	-.2853673E+02
BETA A	-.1152729E+00	ALPHAA	.7139074E+01	YAW E	.1024959E+03	PTCH E	-.9870834E+01
ROLL E	-.2778574E+02	U	-.6027140E+02	V	.6121756E+03	W	.6591960E+02
VEL R	.2464112E+03	GAM R	-.1551667E+02	HDG R	.1047054E+03	SIGMAR	-.2823274E+02
BETA R	-.7478876E+00	ALPHAR	.5996671E+01	U-WIND	-.1608481E+01	V-WIND	-.1167938E+02
W-WIND	0.	SIG-VA	.2539917E-02	SIG-GA	.3325823E-03	SIG-HA	.8182796E-03
SIG-H	.3054854E+00	SIG-LA	.2708561E-05	SIG-LO	.4383292E-05	SIG-SA	.1157716E-02
SIG-BA	.2814078E-03	SIG-AA	.2201939E-03	SIG-YE	.1157716E-02	SIG-PE	.2814078E-03
SIG-RE	.2201939E-03	SIG-U	.4121222E-02	SIG-V	.2229244E-02	SIG-W	.1359489E-02
MACH A	.8027558E+00	MACH R	.8382376E+00	PINF	.2050427E+05	TEMP	.2150993E+03
RHO	.3320800E+00	Q A	.9246261E+04	Q R	.1008169E+05	PSTAG	.3134124E+05
P	-.2675716E+01	Q	.5487227E+00	R	-.1398091E+01	X ACCEL	-.2083164E+01
Y ACCEL	-.8395231E-03	Z ACCEL	-.1063950E+02	CXB	-.8126793E-01	CYB	-.3275129E-04
CZB	-.4150656E+00	CL	.4017480E+00	CD	.1322215E+00	L/D	.3038447E+01
CL-ROLL	-.4073754E-04	CM-PITCH	-.7760754E-03	CN-YAW	.9634598E-04	PDOT	-.9677362E-01
QDOT	-.7478406E-01	RDOT	.5057041E-01				

TIME	.2100000E+04	VEL A	.2333929E+03	GAM A	-.1673317E+02	HDG A	.9827562E+02
ALTDE	.1156682E+05	LATD	.3491100E+02	LONG	.2423201E+03	SIGMAA	-.3663671E+02
BETA A	-.7622785E+00	ALPHAA	.6786668E+01	YAW E	.9477842E+02	PTCH E	-.1080762E+02
ROLL E	-.3584310E+02	U	-.3239648E+02	V	.6147599E+03	W	.6719728E+02
VEL R	.2439341E+03	GAM R	-.1599021E+02	HDG R	.9794102E+02	SIGMAR	-.3655166E+02
BETA R	-.5771324E+00	ALPHAR	.5998719E+01	U-WIND	.2255337E+00	V-WIND	-.1106470E+02
W-WIND	0.	SIG-VA	.2703360E-02	SIG-GA	.3326752E-03	SIG-HA	.8168862E-03
SIG-H	.3024501E+00	SIG-LA	.2750450E-05	SIG-LO	.4449531E-05	SIG-SA	.1136298E-02
SIG-BA	.3537017E-03	SIG-AA	.1811541E-03	SIG-YE	.1136298E-02	SIG-PE	.3537017E-03
SIG-RE	.1811541E-03	SIG-U	.4250102E-02	SIG-V	.2194557E-02	SIG-W	.1318516E-02
MACH A	.7923556E+00	MACH R	.8281426E+00	PINF	.2161047E+05	TEMP	.2159669E+03
RHO	.3485895E+00	Q A	.9494220E+04	Q R	.1037121E+05	PSTAG	.3269353E+05
P	-.2430916E+01	Q	.9218689E+00	R	-.1609248E+01	X ACCEL	-.2104492E+01
Y ACCEL	.1378126E+00	Z ACCEL	-.1107960E+02	CXB	-.7994746E-01	CYB	.5235357E-02
CZB	-.4209025E+00	CL	.4085056E+00	CD	.1291265E+00	L/D	.3163607E+01
CL-ROLL	.1838864E-03	CM-PITCH	.4567767E-03	CN-YAW	-.3266130E-03	PDOT	.4785520E+00
QDOT	.1406169E+00	RDOT	-.6367691E-01				

TIME	.2105000E+04	VEL A	.2306158E+03	GAM A	-.1764411E+02	HDG A	.8860740E+02
ALTDE	.1116264E+05	LATD	.3491028E+02	LONG	.2423328E+03	SIGMAA	-.4231203E+02
BETA A	-.2956627E+00	ALPHAA	.7542307E+01	YAW E	.8365055E+02	PTCH E	-.1181180E+02
ROLL E	-.4106897E+02	U	.1943433E+01	V	.6123165E+03	W	.6990047E+02
VEL R	.2402242E+03	GAM R	-.1691665E+02	HDG R	.8951550E+02	SIGMAR	-.4258202E+02
BETA R	.8351424E+00	ALPHAR	.7590744E+01	U-WIND	.3397567E+01	V-WIND	-.1011911E+02
W-WIND	0.	SIG-VA	.2446347E-02	SIG-GA	.3642112E-03	SIG-HA	.9899552E-03
SIG-H	.2992778E+00	SIG-LA	.2805333E-05	SIG-LO	.4513114E-05	SIG-SA	.1196901E-02
SIG-BA	.1211360E-03	SIG-AA	.1844115E-03	SIG-YE	.1196901E-02	SIG-PE	.1211360E-03
SIG-RE	.1844115E-03	SIG-U	.4225278E-02	SIG-V	.2313961E-02	SIG-W	.1286057E-02
MACH A	.7808714E+00	MACH R	.8134058E+C0	PINF	.2281211E+05	TEMP	.2171057E+03
RHO	.3660424E+00	Q A	.9733731E+04	Q R	.1056172E+05	PSTAG	.3412522E+05
P	-.6410649E+00	Q	.9000140E+00	R	-.1653261E+01	X ACCEL	-.2262073E+01
Y ACCEL	.1915662E+00	Z ACCEL	-.1209919E+02	CXB	-.8381025E-01	CYB	.7097567E-02
CZB	-.4482773E+00	CL	.4333981E+00	CD	.1419252E+00	L/D	.3053707E+01
CL-ROLL	.3029103E-03	CM-PITCH	-.3228905E-02	CN-YAW	.6586793E-04	PDOT	.8429706E+00
QDOT	-.5605930E+00	RDOT	.5111304E-01				

TIME	.2110000E+04	VEL A	.2266181E+03	GAM A	-.1836252E+02	HDG A	.7798294E+02
ALTDE	.1080828E+05	LATD	.3491122E+02	LONG	.2423451E+03	SIGMAA	-.4473723E+02
BETA A	.1640574E+00	ALPHAA	.8254062E+01	YAW E	.7192275E+02	PTCH E	-.1252528E+02
ROLL E	-.4310810E+02	U	.4006196E+02	V	.6025481E+03	W	.7139110E+02
VEL R	.2348109E+03	GAM R	-.1770021E+02	HDG R	.7968313E+02	SIGMAR	-.4527498E+02
BETA R	.1775470E+01	ALPHAR	.8929199E+01	U-WIND	.4718180E+01	V-WIND	-.9712532E+01
W-WIND	0.	SIG-VA	.2780893E-02	SIG-GA	.3745714E-03	SIG-HA	.9260344E-03
SIG-H	.2957853E+00	SIG-LA	.2867891E-05	SIG-LO	.4574049E-05	SIG-SA	.1188317E-02
SIG-BA	.1118982E-03	SIG-AA	.1688187E-03	SIG-YE	.1188317E-02	SIG-PE	.1118982E-03
SIG-RE	.1688187E-03	SIG-U	.4024472E-02	SIG-V	.2624459E-02	SIG-W	.1274018E-02
MACH A	.7648497E+00	MACH R	.7925010E+00	PINF	.2411141E+05	TEMP	.2185190E+03
RHO	.3843888E+00	Q A	.9870287E+04	Q R	.1059686E+05	PSTAG	.3551464E+05
P	-.8228801E+00	Q	.1481390E+01	R	-.1910074E+01	X ACCEL	-.2282862E+01
Y ACCEL	.1441124E+00	Z ACCEL	-.1264650E+02	CXB	-.8340104E-01	CYB	.5264937E-02
CZB	-.4620215E+00	CL	.4452622E+00	CD	.1488662E+00	L/D	.2991023E+01
CL-ROLL	-.1444049E-03	CM-PITCH	.1591803E-02	CN-YAW	.2318431E-05	PDOT	-.3863234E+00
QDOT	.3154178E+00	RDOT	.1071889E-01				

TIME	.2115000E+04	VEL A	.2216424E+03	GAM A	-.1903967E+02	HDG A	.6597072E+02
ALTDE	.1045191E+05	LATD	.3491395E+02	LONG	.2423566E+03	SIGMAA	-.4676328E+02
BETA A	-.1912140E+00	ALPHAA	.7823804E+01	YAW E	.6025201E+02	PTCH E	-.1345960E+02
ROLL E	-.4517301E+02	U	.8064308E+02	V	.5841104E+03	W	.7230477E+02
VEL R	.2289192E+03	GAM R	-.1841231E+02	HDG R	.6820516E+02	SIGMAR	-.4749561E+02
BETA R	.1708288E+01	ALPHAR	.8948004E+01	U-WIND	.4672977E+01	V-WIND	-.1031501E+02
W-WIND	0.	SIG-VA	.3223826E-02	SIG-GA	.3945006E-03	SIG-HA	.8186697E-03
SIG-H	.2917808E+00	SIG-LA	.2930334E-05	SIG-LO	.4633716E-05	SIG-SA	.1166459E-02
SIG-BA	.1130537E-03	SIG-AA	.1540225E-03	SIG-YE	.1166459E-02	SIG-PE	.1130537E-03
SIG-RE	.1540225E-03	SIG-U	.3636819E-02	SIG-V	.3098136E-02	SIG-W	.1301750E-02
MACH A	.7452458E+00	MACH R	.7697131E+00	PINF	.2548296E+05	TEMP	.2201703E+03
RHO	.4032072E+00	Q A	.9903843E+04	Q R	.1056483E+05	PSTAG	.3684309E+05
P	-.7304776E+00	Q	.1452198E+01	R	-.1752542E+01	X ACCEL	-.2198706E+01
Y ACCEL	.5062470E-01	Z ACCEL	-.1270467E+02	CXB	-.8004542E-01	CYB	.1843027E-02
CZB	-.4625223E+00	CL	.4473205E+00	CD	.1422622E+00	L/D	.3144339E+01
CL-ROLL	.4820066E-04	CM-PITCH	-.1337887E-02	CN-YAW	.1740024E-03	PDOT	.1594822E+00
QDOT	-.2224243E+00	RDOT	.8038395E-01				

TIME	.2120000E+04	VEL A	.2182962E+03	GAM A	-.2020859E+02	HDG A	.5411039E+02
ALTDE	.1008376E+05	LATD	.3491839E+02	LONG	.2423670E+03	SIGMAA	-.4641059E+02
BETA A	-.1571749E-01	ALPHAA	.8077646E+01	YAW E	.4808641E+02	PTCH E	-.1453125E+02
ROLL E	-.4460958E+02	U	.1158470E+03	V	.5582153E+03	W	.7540800E+02
VEL R	.2236523E+03	GAM R	-.1970432E+02	HDG R	.5661964E+02	SIGMAR	-.4729055E+02
BETA R	.1965245E+01	ALPHAR	.9453700E+01	U-WIND	.4246087E+01	V-WIND	-.9856843E+01
W-WIND	0.	SIG-VA	.3636385E-02	SIG-GA	.4177336E-03	SIG-HA	.6941783E-03
SIG-H	.2871400E+00	SIG-LA	.2984393E-05	SIG-LO	.4695095E-05	SIG-SA	.1128759E-02
SIG-BA	.1124376E-03	SIG-AA	.1481257E-03	SIG-YE	.1128759E-02	SIG-PE	.1124376E-03
SIG-RE	.1481257E-03	SIG-U	.3140693E-02	SIG-V	.3576895E-02	SIG-W	.1375190E-02
MACH A	.7307976E+00	MACH R	.7487285E+00	PINF	.2696951E+05	TEMP	.2221009E+03
RHO	.4230191E+00	Q A	.1007911E+05	Q R	.1057978E+05	PSTAG	.3847096E+05
P	-.1785909E+00	Q	.1807617E+01	R	-.1816909E+01	X ACCEL	-.2357452E+01
Y ACCEL	.7599620E-01	Z ACCEL	-.1278674E+02	CXB	-.8432249E-01	CYB	.2718269E-02
CZB	-.4573622E+00	CL	.4409759E+00	CD	.1477521E+00	L/D	.2984566E+01
CL-ROLL	-.2492853E-04	CM-PITCH	.8167056E-03	CN-YAW	.1325966E-03	PDOT	-.4384549E-01
QDOT	.1580468E+00	RDOT	.5165870E-01				

TIME	.2125000E+04	VEL A	.2140772E+03	GAM A	-.2033346E+02	HDG A	.4185173E+02
ALTDE	.9710771E+04	LATD	.3492432E+02	LONG	.2423757E+03	SIGMAA	-.4309691E+02
BETA A	-.3622205E-01	ALPHAA	.7951740E+01	YAW E	.3627837E+02	PTCH E	-.1441957E+02
ROLL E	-.4143153E+02	U	.1463142E+03	V	.5249712E+03	W	.7438825E+02
VEL R	.2174494E+03	GAM R	-.2000454E+02	HDG R	.4426910E+02	SIGMAR	-.4395130E+02
BETA R	.1835640E+01	ALPHAR	.9276030E+01	U-WIND	.3209681E+01	V-WIND	-.8695143E+01
W-WIND	0.	SIG-VA	.3988517E-02	SIG-GA	.4422844E-03	SIG-HA	.5810013E-03
SIG-H	.2817860E+00	SIG-LA	.3022386E-05	SIG-LO	.4761694E-05	SIG-SA	.1081738E-02
SIG-BA	.9896433E-04	SIG-AA	.1472027E-03	SIG-YE	.1081738E-02	SIG-PE	.9896433E-04
SIG-RE	.1472027E-03	SIG-U	.2621001E-02	SIG-V	.4014001E-02	SIG-W	.1492947E-02
MACH A	.7131974E+00	MACH R	.7244319E+00	PINF	.2854919E+05	TEMP	.2242712E+03
RHO	.4434632E+00	Q A	.1016174E+05	Q R	.1048441E+05	PSTAG	.4007348E+05
P	.1025515E+01	Q	.1515592E+01	R	-.1385510E+01	X ACCEL	-.2342116E+01
Y ACCEL	-.2625912E-01	Z ACCEL	-.1294187E+02	CXB	-.8308293E-01	CYB	-.9315016E-03
CZB	-.4590928E+00	CL	.4431850E+00	CD	.1457945E+00	L/D	.3039792E+01
CL-ROLL	.1342718E-03	CM-PITCH	.1520310E-02	CN-YAW	.6746052E-03	PDOT	.4421591E+00
QDOT	.2621004E+00	RDOT	.2276835E+00				

TIME	.2130000E+04	VEL A	.2099217E+03	GAM A	-.1991851E+02	HDG A	.3144779E+02
ALTDE	.9348694E+04	LATD	.3493141E+02	LONG	.2423826E+03	SIGMAA	-.3719958E+02
BETA A	-.4036042E+00	ALPHAA	.7224272E+01	YAW E	.2728551E+02	PTCH E	-.1387611E+02
ROLL E	-.3601309E+02	U	.1671202E+03	V	.4917826E+03	W	.7151683E+02
VEL R	.2122093E+03	GAM R	-.1969486E+02	HDG R	.3323208E+02	SIGMAR	-.3780910E+02
BETA R	.1064315E+01	ALPHAR	.8063903E+01	U-WIND	.1254029E+01	V-WIND	-.6525143E+01
W-WIND	0.	SIG-VA	.4204917E-02	SIG-GA	.4612757E-03	SIG-HA	.5307438E-03
SIG-H	.2757436E+00	SIG-LA	.3040379E-05	SIG-LO	.4836598E-05	SIG-SA	.1036670E-02
SIG-BA	.8253380E-04	SIG-AA	.1560207E-03	SIG-YE	.1036670E-02	SIG-PE	.8253380E-04
SIG-RE	.1560207E-03	SIG-U	.2281937E-02	SIG-V	.4306174E-02	SIG-W	.1617469E-02
MACH A	.6958023E+00	MACH R	.7033845E+00	PINF	.3015476E+05	TEMP	.2265663E+03
RHO	.4636581E+00	Q A	.1021604E+05	Q R	.1043990E+05	PSTAG	.4167168E+05
P	.2157004E+00	Q	.1067640E+01	R	-.1337004E+01	X ACCEL	-.2558475E+01
Y ACCEL	.2640917E-02	Z ACCEL	-.1230728E+02	CXB	-.9026527E-01	CYB	.9317389E-04
CZB	-.4342117E+00	CL	.4194136E+00	CD	.1441523E+00	L/D	.2909516E+01
CL-ROLL	-.2062093E-04	CM-PITCH	.2483841E-03	CN-YAW	.9113440E-04	PDOT	-.4513751E-01
QDOT	.4285401E-01	RDOT	.2864895E-01				

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*********************************************************************************************
*    METBET1 USING LAIRS(USE8,10/81     ),AMABETH,NE0105 DYNAM, DATA              PAGE   48   *
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TIME	.2135000E+04	VEL A	.2057819E+03	GAM A	-.1940306E+02	HDG A	.2201309E+02
ALTDE	.9000416E+04	LATD	.3493923E+02	LONG	.2423877E+03	SIGMAA	-.3283671E+02
BETA A	-.4152685E+00	ALPHAA	.7361588E+01	YAW E	.1828068E+02	PTCH E	-.1295847E+02
ROLL E	-.3182134E+02	U	.1795585E+03	V	.4603599E+03	W	.6836311E+02
VEL R	.2074098E+03	GAM R	-.1924475E+02	HDG R	.2351456E+02	SIGMAR	-.3333607E+02
BETA R	.8582939E+00	ALPHAR	.8002422E+01	U-WIND	.3861933E+00	V-WIND	-.5378322E+01
W-WIND	0.	SIG-VA	.4299323E-02	SIG-GA	.4734624E-03	SIG-HA	.5398555E-03
SIG-H	.2691627E+00	SIG-LA	.3039692E-05	SIG-LO	.4921608E-05	SIG-SA	.9843517E-03
SIG-BA	.7681343E-04	SIG-AA	.1628169E-03	SIG-YE	.9843517E-03	SIG-PE	.7681343E-04
SIG-RE	.1628169E-03	SIG-U	.2152886E-02	SIG-V	.4462150E-02	SIG-W	.1731324E-02
MACH A	.6785461E+00	MACH R	.6839140E+00	PINF	.3176734E+05	TEMP	.2289327E+03
RHO	.4834041E+00	Q A	.1023515E+05	Q R	.1039773E+05	PSTAG	.4323926E+05
P	.1574230E+01	Q	.9243203E+00	R	-.9884641E+00	X ACCEL	-.2540579E+01
Y ACCEL	.4820855E-01	Z ACCEL	-.1241746E+02	CXB	-.8945664E-01	CYB	.1697477E-02
CZB	-.4372329E+00	CL	.4221667E+00	CD	.1447422E+00	L/D	.2916679E+01
CL-ROLL	-.2059534E-04	CM-PITCH	-.1525805E-02	CN-YAW	.1120660E-03	PDOT	-.4595774E-01
QDOT	-.3128011E+00	RDOT	.1807201E-01				

TIME	.2140000E+04	VEL A	.2018042E+03	GAM A	-.1892739E+02	HDG A	.1397962E+02
ALTDE	.8669639E+04	LATD	.3494746E+02	LONG	.2423912E+03	SIGMAA	-.3018201E+02
BETA A	-.2629628E+00	ALPHAA	.7086711E+01	YAW E	.1056674E+02	PTCH E	-.1264105E+02
ROLL E	-.2926829E+02	U	.1852533E+03	V	.4330167E+03	W	.6545917E+02
VEL R	.2029501E+03	GAM R	-.1881650E+02	HDG R	.1534711E+02	SIGMAR	-.3062751E+02
BETA R	.9091872E+00	ALPHAR	.7645963E+01	U-WIND	-.1446964E-01	V-WIND	-.4728086E+01
W-WIND	0.	SIG-VA	.4298669E-02	SIG-GA	.4790134E-03	SIG-HA	.5809071E-03
SIG-H	.2621845E+00	SIG-LA	.3022598E-05	SIG-LO	.5017069E-05	SIG-SA	.9346769E-03
SIG-BA	.7140633E-04	SIG-AA	.1690925E-03	SIG-YE	.9346769E-03	SIG-PE	.7140633E-04
SIG-RE	.1690925E-03	SIG-U	.2188891E-02	SIG-V	.4505186E-02	SIG-W	.1821122E-02
MACH A	.6620019E+00	MACH R	.6657608E+00	PINF	.3336179E+05	TEMP	.2313099E+03
RHO	.5024494E+00	Q A	.1023111E+05	Q R	.1034762E+05	PSTAG	.4476726E+05
P	-.6511464E+00	Q	.8297468E+00	R	-.1386719E+01	X ACCEL	-.2479713E+01
Y ACCEL	.1136581E+00	Z ACCEL	-.1134755E+02	CXB	-.8733884E-01	CYB	.4003194E-02
CZB	-.3996759E+00	CL	.3858475E+00	CD	.1359802E+00	L/D	.2837528E+01
CL-ROLL	-.1434641E-03	CM-PITCH	.4404555E-03	CN-YAW	-.3004367E-03	PDOT	-.4276936E+00
QDOT	.9793261E-01	RDOT	-.1088895E+00				

TIME	.2145000E+04	VEL A	.1983472E+03	GAM A	-.1849241E+02	HDG A	.5171899E+01
ALTDE	.8351801E+04	LATD	.3495586E+02	LONG	.2423932E+03	SIGMAA	-.3368384E+02
BETA A	-.4271905E+00	ALPHAA	.7064154E+01	YAW E	.1530117E+01	PTCH E	-.1234638E+02
ROLL E	-.3274023E+02	U	.1876763E+03	V	.4029698E+03	W	.6291157E+02
VEL R	.1990356E+03	GAM R	-.1842614E+02	HDG R	.6340664E+01	SIGMAR	-.3405443E+02
BETA R	.5302548E+00	ALPHAR	.7626964E+01	U-WIND	-.3364864E+00	V-WIND	-.3897865E+01
W-WIND	0.	SIG-VA	.4237903E-02	SIG-GA	.4832017E-03	SIG-HA	.6530597E-03
SIG-H	.2549131E+00	SIG-LA	.2990671E-05	SIG-LO	.5122362E-05	SIG-SA	.8785243E-03
SIG-BA	.6900241E-04	SIG-AA	.1599824E-03	SIG-YE	.8785243E-03	SIG-PE	.6900241E-04
SIG-RE	.1599824E-03	SIG-U	.2368522E-02	SIG-V	.4489733E-02	SIG-W	.1918466E-02
MACH A	.6473246E+00	MACH R	.6495714E+00	PINF	.3495250E+05	TEMP	.2337007E+03
RHO	.5210213E+00	Q A	.1024890E+05	Q R	.1032017E+05	PSTAG	.4632426E+05
P	-.7369798E+00	Q	.9769545E+00	R	-.1500188E+01	X ACCEL	-.2202831E+01
Y ACCEL	.2738841E-01	Z ACCEL	-.1174888E+02	CXB	-.7744419E-01	CYB	.9628854E-03
CZB	-.4130514E+00	CL	.4003918E+00	CD	.1276536E+00	L/D	.3136549E+01
CL-ROLL	-.2130193E-04	CM-PITCH	-.8946711E-04	CN-YAW	-.1074350E-03	PDOT	-.6098248E-01
QDOT	.1432093E-02	RDOT	-.2873278E-01				

TIME	.2150000E+04	VEL A	.1961566E+03	GAM A	-.1850117E+02	HDG A	-.4005606E+01
ALTDE	.8043193E+04	LATD	.3496430E+02	LONG	.2423935E+03	SIGMAA	-.3334206E+02
BETA A	-.3122412E+00	ALPHAA	.6972280E+01	YAW E	-.7658080E+01	PTCH E	-.1247335E+02
ROLL E	-.3238412E+02	U	.1862269E+03	V	.3719502E+03	W	.6224523E+02
VEL R	.1966141E+03	GAM R	-.1845657E+02	HDG R	-.3106688E+01	SIGMAR	-.3362740E+02
BETA R	.4234396E+00	ALPHAR	.7405453E+01	U-WIND	-.6626362E+00	V-WIND	-.2886668E+01
W-WIND	0.	SIG-VA	.4112971E-02	SIG-GA	.4854702E-03	SIG-HA	.7475878E-03
SIG-H	.2473670E+00	SIG-LA	.2941752E-05	SIG-LO	.5236379E-05	SIG-SA	.8084714E-03
SIG-BA	.7803622E-04	SIG-AA	.1632348E-03	SIG-YE	.8084714E-03	SIG-PE	.7803622E-04
SIG-RE	.1632348E-03	SIG-U	.2679571E-02	SIG-V	.4407053E-02	SIG-W	.2013818E-02
MACH A	.6369000E+00	MACH R	.6383853E+00	PINF	.3655282E+05	TEMP	.2361108E+03
RHO	.5393148E+00	Q A	.1037572E+05	Q R	.1042417E+05	PSTAG	.4802764E+05
P	-.1346463E+00	Q	.1092671E+01	R	-.1495973E+01	X ACCEL	-.1974018E+01
Y ACCEL	-.7250380E-01	Z ACCEL	-.1132258E+02	CXB	-.6854497E-01	CYB	-.2517592E-02
CZB	-.3931606E+00	CL	.3819326E+00	CD	.1157635E+00	L/D	.3299249E+01
CL-ROLL	.8358656E-04	CM-PITCH	.4777111E-03	CN-YAW	.5300348E-03	PDOT	.2896343E+00
QDOT	.9536872E-01	RDOT	.2014692E+00				

TIME	.2155000E+04	VEL A	.1947706E+03	GAM A	-.1826025E+02	HDG A	-.1285635E+02
ALTDE	.7738016E+04	LATD	.3497257E+02	LONG	.2423921E+03	SIGMAA	-.3091467E+02
BETA A	-.1237076E+00	ALPHAA	.7255140E+01	YAW E	-.1655096E+02	PTCH E	-.1194008E+02
ROLL E	-.2995827E+02	U	.1809155E+03	V	.3429674E+03	W	.6102817E+02
VEL R	.1948807E+03	GAM R	-.1824957E+02	HDG R	-.1217530E+02	SIGMAR	-.3112890E+02
BETA R	.4360651E+00	ALPHAR	.7579313E+01	U-WIND	-.5897578E+00	V-WIND	-.2121864E+01
W-WIND	0.	SIG-VA	.3099361E-02	SIG-GA	.5050888E-03	SIG-HA	.1339079E-02
SIG-H	.2396464E+00	SIG-LA	.2877741E-05	SIG-LO	.5357223E-05	SIG-SA	.1320744E-02
SIG-BA	.1401436E-03	SIG-AA	.1688420E-03	SIG-YE	.1320744E-02	SIG-PE	.1401436E-03
SIG-RE	.1688420E-03	SIG-U	.3034196E-02	SIG-V	.4258239E-02	SIG-W	.2090572E-02
MACH A	.6291328E+00	MACH R	.6294884E+00	PINF	.3819019E+05	TEMP	.2385692E+03
RHO	.5576667E+00	Q A	.1057770E+05	Q R	.1058966E+05	PSTAG	.4986026E+05
P	-.3649975E-01	Q	.9825599E+00	R	-.1364922E+01	X ACCEL	-.1558181E+01
Y ACCEL	-.1412550E-01	Z ACCEL	-.1112048E+02	CXB	-.5306736E-01	CYB	-.4810757E-03
CZB	-.3787330E+00	CL	.3689989E+00	CD	.1004719E+00	L/D	.3672658E+01
CL-ROLL	.1497550E-03	CM-PITCH	.1359251E-02	CN-YAW	.1317909E-03	PDOT	.4629733E+00
QDOT	.2661954E+00	RDOT	.6053606E-01				

TIME	.2160000E+04	VEL A	.1959971E+03	GAM A	-.1803491E+02	HDG A	-.2082121E+02
ALTDE	.7435581E+04	LATD	.3498058E+02	LONG	.2423893E+03	SIGMAA	-.2777454E+02
BETA A	.3669738E-01	ALPHAA	.7318786E+01	YAW E	-.2432777E+02	PTCH E	-.1154751E+02
ROLL E	-.2687528E+02	U	.1743747E+03	V	.3172440E+03	W	.6068000E+02
VEL R	.1956397E+03	GAM R	-.1805899E+02	HDG R	-.2035739E+02	SIGMAR	-.2791919E+02
BETA R	.4107028E+00	ALPHAR	.7554909E+01	U-WIND	-.1781805E+00	V-WIND	-.1543055E+01
W-WIND	0.	SIG-VA	.3428886E-02	SIG-GA	.5175612E-03	SIG-HA	.1296170E-02
SIG-H	.2318596E+00	SIG-LA	.2802175E-05	SIG-LO	.5482877E-05	SIG-SA	.1316461E-02
SIG-BA	.1490320E-03	SIG-AA	.1625006E-03	SIG-YE	.1316461E-02	SIG-PE	.1490320E-03
SIG-RE	.1625006E-03	SIG-U	.3380112E-02	SIG-V	.4092646E-02	SIG-W	.2151552E-02
MACH A	.6298034E+00	MACH R	.6286552E+00	PINF	.3986746E+05	TEMP	.2410690E+03
RHO	.5761219E+00	Q A	.1106582E+05	Q R	.1102550E+05	PSTAG	.5207857E+05
P	.4094281E+00	Q	.7654878E+00	R	-.1188973E+01	X ACCEL	-.1393933E+01
Y ACCEL	-.5113859E-01	Z ACCEL	-.1153740E+02	CXB	-.4537510E-01	CYB	-.1664656E-02
CZB	-.3755637E+00	CL	.3667235E+00	CD	.9284840E-01	L/D	.3949702E+01
CL-ROLL	-.7366069E-04	CM-PITCH	.1582248E-02	CN-YAW	-.7012300E-04	PDOT	-.2295355E+00
QDOT	.3150259E+00	RDOT	-.3664620E-01				

TIME	.2165000E+04	VEL A	.1966564E+03	GAM A	-.1690225E+02	HDG A	-.2872633E+02
ALTDE	.7144728E+04	LATD	.3498821E+02	LONG	.2423850E+03	SIGMAA	-.2736610E+02
BETA A	-.1298806E+00	ALPHAA	.6607073E+01	YAW E	-.3169758E+02	PTCH E	-.1095563E+02
ROLL E	-.2665725E+02	U	.1641136E+03	V	.2927531E+03	W	.5717584E+02
VEL R	.1953157E+03	GAM R	-.1702180E+02	HDG R	-.2850899E+02	SIGMAR	-.2742928E+02
BETA R	-.3228438E-03	ALPHAR	.6808868E+01	U-WIND	.8898113E+00	V-WIND	-.1295541E+01
W-WIND	0.	SIG-VA	.3743820E-02	SIG-GA	.5283947E-03	SIG-HA	.1232972E-02
SIG-H	.2241023E+00	SIG-LA	.2718458E-05	SIG-LO	.5611169E-05	SIG-SA	.1309172E-02
SIG-BA	.1498184E-03	SIG-AA	.1581591E-03	SIG-YE	.1309172E-02	SIG-PE	.1498184E-03
SIG-RE	.1581591E-03	SIG-U	.3708993E-02	SIG-V	.3863608E-02	SIG-W	.2192780E-02
MACH A	.6287297E+00	MACH R	.6244435E+00	PINF	.4153253E+05	TEMP	.2435232E+03
RHO	.5941352E+00	Q A	.1148871E+05	Q R	.1133260E+05	PSTAG	.5420612E+05
P	.3175729E+00	Q	.3598720E+00	R	-.1174512E+01	X ACCEL	-.1625025E+01
Y ACCEL	.4017632E-01	Z ACCEL	-.1058562E+02	CXB	-.5094576E-01	CYB	.1259558E-02
CZB	-.3318671E+00	CL	.3238012E+00	CD	.8879196E-01	L/D	.3646740E+01
CL-ROLL	.8532462E-04	CM-PITCH	.7351662E-03	CN-YAW	-.8137558E-04	PDOT	.2724615E+00
QDOT	.1500560E+00	RDOT	-.2774456E-01				

TIME	.2170000E+04	VEL A	.1958898E+03	GAM A	-.1618380E+02	HDG A	-.3583436E+02
ALTDE	.6865939E+04	LATD	.3499532E+02	LONG	.2423796E+03	SIGMAA	-.2464264E+02
BETA A	.2823937E+00	ALPHAA	.6759251E+01	YAW E	-.3895121E+02	PTCH E	-.1013683E+02
ROLL E	-.2391517E+02	U	.1513690E+03	V	.2724963E+03	W	.5459832E+02
VEL R	.1945515E+03	GAM R	-.1629821E+02	HDG R	-.3584383E+02	SIGMAR	-.2464044E+02
BETA R	.2254336E+00	ALPHAR	.6859462E+01	U-WIND	.1148107E+01	V-WIND	-.7910537E+00
W-WIND	0.	SIG-VA	.3983120E-02	SIG-GA	.5353509E-03	SIG-HA	.1157764E-02
SIG-H	.2164930E+00	SIG-LA	.2630902E-05	SIG-LO	.5739456E-05	SIG-SA	.1294739E-02
SIG-BA	.1580817E-03	SIG-AA	.1482728E-03	SIG-YE	.1294739E-02	SIG-PE	.1580817E-03
SIG-RE	.1482728E-03	SIG-U	.3959037E-02	SIG-V	.3601674E-02	SIG-W	.2205908E-02
MACH A	.6232280E+00	MACH R	.6189703E+00	PINF	.4317716E+05	TEMP	.2459133E+03
RHO	.6116589E+00	Q A	.1173553E+05	Q R	.1157573E+05	PSTAG	.5610120E+05
P	-.2257149E-01	Q	.6613199E+00	R	-.1281829E+01	X ACCEL	-.1605622E+01
Y ACCEL	.4306237E-01	Z ACCEL	-.1132067E+02	CXB	-.4927441E-01	CYB	.1321527E-02
CZB	-.3474164E+00	CL	.3392022E+00	CD	.8982205E-01	L/D	.3776380E+01
CL-ROLL	-.3833380E-03	CM-PITCH	-.7804519E-03	CN-YAW	-.4850718E-03	PDOT	-.1300338E+01
QDOT	-.1674077E+00	RDOT	-.2284605E+00				

TIME	.2175000E+04	VEL A	.1936263E+03	GAM A	-.1557650E+02	HDG A	-.4389448E+02
ALTDE	.6602553E+04	LATD	.3500176E+02	LONG	.2423731E+03	SIGMAA	-.3133378E+02
BETA A	.2502377E+00	ALPHAA	.6882145E+01	YAW E	-.4773581E+02	PTCH E	-.9797561E+01
ROLL E	-.3047370E+02	U	.1332863E+03	V	.2522921E+03	W	.5199345E+02
VEL R	.1929772E+03	GAM R	-.1563023E+02	HDG R	-.4417572E+02	SIGMAR	-.3125793E+02
BETA R	-.9133860E-02	ALPHAR	.6787347E+01	U-WIND	.1119707E+01	V-WIND	.1885675E+00
W-WIND	0.	SIG-VA	.4210337E-02	SIG-GA	.5407738E-03	SIG-HA	.1058081E-02
SIG-H	.2091322E+00	SIG-LA	.2543605E-05	SIG-LO	.5865127E-05	SIG-SA	.1273272E-02
SIG-BA	.1857379E-03	SIG-AA	.1558852E-03	SIG-YE	.1273272E-02	SIG-PE	.1857379E-03
SIG-RE	.1558852E-03	SIG-U	.4197093E-02	SIG-V	.3262710E-02	SIG-W	.2197392E-02
MACH A	.6131847E+00	MACH R	.6111292E+00	PINF	.4477530E+05	TEMP	.2481980E+03
RHO	.6284598E+00	Q A	.1178083E+05	Q R	.1170198E+05	PSTAG	.5770981E+05
P	-.1387729E+00	Q	.9787010E+00	R	-.1432581E+01	X ACCEL	-.1611886E+01
Y ACCEL	-.9101656E-01	Z ACCEL	-.1161465E+02	CXB	-.4927234E-01	CYB	-.2782205E-02
CZB	-.3550381E+00	CL	.3465758E+00	CD	.9146063E-01	L/D	.3789344E+01
CL-ROLL	.2182379E-03	CM-PITCH	.2719967E-03	CN-YAW	.5895021E-04	PDOT	.7367375E+00
QDOT	.6299879E-01	RDOT	.4401365E-01				

TIME	.2180000E+04	VEL A	.1912059E+03	GAM A	-.1517755E+02	HDG A	-.5319609E+02
ALTDE	.6349454E+04	LATD	.3500725E+02	LONG	.2423655E+03	SIGMAA	-.3057229E+02
BETA A	-.1018677E+00	ALPHAA	.6674672E+01	YAW E	-.5654262E+02	PTCH E	-.9357023E+01
ROLL E	-.2986608E+02	U	.1097998E+03	V	.2336144E+03	W	.5005982E+02
VEL R	.1910711E+03	GAM R	-.1518852E+02	HDG R	-.5345501E+02	SIGMAR	-.3050492E+02
BETA R	-.3226573E+00	ALPHAR	.6557143E+01	U-WIND	.7519809E+00	V-WIND	.3859021E+00
W-WIND	0.	SIG-VA	.4392894E-02	SIG-GA	.5433291E-03	SIG-HA	.9391254E-03
SIG-H	.2021147E+00	SIG-LA	.2459205E-05	SIG-LO	.5984298E-05	SIG-SA	.1240063E-02
SIG-BA	.2056445E-03	SIG-AA	.1447098E-03	SIG-YE	.1240063E-02	SIG-PE	.2056445E-03
SIG-RE	.1447098E-03	SIG-U	.4389698E-02	SIG-V	.2868529E-02	SIG-W	.2159648E-02
MACH A	.6028375E+00	MACH R	.6024127E+00	PINF	.4635224E+05	TEMP	.2504114E+03
RHO	.6448428E+00	Q A	.1178762E+05	Q R	.1177101E+05	PSTAG	.5925433E+05
P	.9057305E-01	Q	.9082475E+00	R	-.1448975E+01	X ACCEL	-.1599491E+01
Y ACCEL	-.3944855E-01	Z ACCEL	-.1157533E+02	CXB	-.4886139E-01	CYB	-.1205078E-02
CZB	-.3536042E+00	CL	.3455283E+00	CD	.8963022E-01	L/D	.3855042E+01
CL-ROLL	-.2686847E-03	CM-PITCH	.2056351E-03	CN-YAW	-.2712468E-03	PDOT	-.9060625E+00
QDOT	.4341213E-01	RDOT	-.1334088E+00				

TIME	.2185000E+04	VEL A	.1890117E+03	GAM A	-.1496149E+02	HDG A	-.6266972E+02
ALTDE	.6104386E+04	LATD	.3501161E+02	LONG	.2423569E+03	SIGMAA	-.3233067E+02
BETA A	-.1834522E+00	ALPHAA	.6761472E+01	YAW E	-.6616993E+02	PTCH E	-.9126713E+01
ROLL E	-.3160998E+02	U	.8374167E+02	V	.2193838E+03	W	.4879711E+02
VEL R	.1890657E+03	GAM R	-.1495712E+02	HDG R	-.6271245E+02	SIGMAR	-.3231973E+02
BETA R	-.2160003E+00	ALPHAR	.6735696E+01	U-WIND	.9537560E-01	V-WIND	.1122043E+00
W-WIND	0.	SIG-VA	.4474766E-02	SIG-GA	.5409290E-03	SIG-HA	.8231064E-03
SIG-H	.1955296E+00	SIG-LA	.2382545E-05	SIG-LD	.6094298E-05	SIG-SA	.1193786E-02
SIG-BA	.2435166E-03	SIG-AA	.1398085E-03	SIG-YE	.1193786E-02	SIG-PE	.2435166E-03
SIG-RE	.1398085E-03	SIG-U	.4479569E-02	SIG-V	.2499007E-02	SIG-W	.2089727E-02
MACH A	.5933727E+00	MACH R	.5935424E+00	PINF	.4791822E+05	TEMP	.2525657E+03
RHO	.6609422E+00	Q A	.1180621E+05	Q R	.1181297E+05	PSTAG	.6080481E+05
P	-.4708553E-02	Q	.1110116E+01	R	-.1623697E+01	X ACCEL	-.1649504E+01
Y ACCEL	.1539437E+00	Z ACCEL	-.1145513E+02	CXB	-.5030593E-01	CYB	.4694913E-02
CZB	-.3493542E+00	CL	.3410015E+00	CD	.9108769E-01	L/D	.3743662E+01
CL-ROLL	.2078306E-03	CM-PITCH	.3093407E-03	CN-YAW	.6433857E-04	PDOT	.7064106E+00
QDOT	.6845635E-01	RDOT	.4383294E-01				

TIME	.2190000E+04	VEL A	.1867581E+03	GAM A	-.1452432E+02	HDG A	-.7218490E+02
ALTDE	.5865844E+04	LATD	.3501477E+02	LONG	.2423478E+03	SIGMAA	-.3119695E+02
BETA A	.6549796E-01	ALPHAA	.6899978E+01	YAW E	-.7584992E+02	PTCH E	-.8630628E+01
ROLL E	-.3045624E+02	U	.5626733E+02	V	.2103526E+03	W	.4683723E+02
VEL R	.1863257E+03	GAM R	-.1455877E+02	HDG R	-.7182007E+02	SIGMAR	-.3128932E+02
BETA R	.3495512E+00	ALPHAR	.7112595E+01	U-WIND	-.9554386E+00	V-WIND	-.7801048E+00
W-WIND	0.	SIG-VA	.4439252E-02	SIG-GA	.5326493E-03	SIG-HA	.7263323E-03
SIG-H	.1894436E+00	SIG-LA	.2318294E-05	SIG-LD	.6193220E-05	SIG-SA	.1138464E-02
SIG-BA	.2604667E-03	SIG-AA	.1227432E-03	SIG-YE	.1138464E-02	SIG-PE	.2604667E-03
SIG-RE	.1227432E-03	SIG-U	.4450025E-02	SIG-V	.2213403E-02	SIG-W	.1988896E-02
MACH A	.5838729E+00	MACH R	.5825210E+00	PINF	.4947998E+05	TEMP	.2546680E+03
RHO	.6768499E+00	Q A	.1180378E+05	Q R	.1174918E+05	PSTAG	.6232858E+05
P	-.4686228E+00	Q	.9137339E+00	R	-.1565834E+01	X ACCEL	-.1653450E+01
Y ACCEL	.8924593E-01	Z ACCEL	-.1164660E+02	CXB	-.5043288E-01	CYB	.2722144E-02
CZB	-.3552400E+00	CL	.3466083E+00	CD	.9274490E-01	L/D	.3737223E+01
CL-ROLL	.6758670E-04	CM-PITCH	-.1023224E-02	CN-YAW	.4596464E-04	PDOT	.2361070E+00
QDOT	-.2096680E+00	RDOT	.3128731E-01				

TIME	.2195000E+04	VEL A	.1844241E+03	GAM A	-.1455036E+02	HDG A	-.8154655E+02
ALTDE	.5633666E+04	LATD	.3501667E+02	LONG	.2423383E+03	SIGMAA	-.3182981E+02
BETA A	-.7078275E-01	ALPHAA	.6575824E+01	YAW E	-.8499083E+02	PTCH E	-.8903769E+01
ROLL E	-.3113278E+02	U	.2794304E+02	V	.2063667E+03	W	.4633302E+02
VEL R	.1834636E+03	GAM R	-.1462823E+02	HDG R	-.8094335E+02	SIGMAR	-.3198278E+02
BETA R	.3836157E+00	ALPHAR	.6950457E+01	U-WIND	-.1701172E+01	V-WIND	-.1266148E+01
W-WIND	0.	SIG-VA	.4295932E-02	SIG-GA	.5189322E-03	SIG-HA	.6670303E-03
SIG-H	.1838897E+00	SIG-LA	.2269850E-05	SIG-LO	.6280106E-05	SIG-SA	.1077110E-02
SIG-BA	.2912463E-03	SIG-AA	.1096917E-03	SIG-YE	.1077110E-02	SIG-PE	.2912463E-03
SIG-RE	.1096917E-03	SIG-U	.4311189E-02	SIG-V	.2072710E-02	SIG-W	.1862482E-02
MACH A	.5742732E+00	MACH R	.5712824E+00	PINF	.5103613E+05	TEMP	.2567145E+03
RHO	.6925716E+00	Q A	.1177795E+05	Q R	.1165559E+05	PSTAG	.6382164E+05
P	-.7129094E-01	Q	.7230158E+00	R	-.1594488E+01	X ACCEL	-.1693263E+01
Y ACCEL	.5480946E-01	Z ACCEL	-.1134858E+02	CXB	-.5175673E-01	CYB	.1675321E-02
CZB	-.3468836E+00	CL	.3386744E+00	CD	.9114064E-01	L/D	.3715954E+01
CL-ROLL	.4210446E-03	CM-PITCH	-.1951613E-02	CN-YAW	.1617326E-03	PDOT	.1416218E+01
QDOT	-.4201559E+00	RDOT	.1008015E+00				

TIME	.2200000E+04	VEL A	.1844902E+03	GAM A	-.1750452E+02	HDG A	-.8881489E+02
ALTDE	.5384180E+04	LATD	.3501740E+02	LONG	.2423287E+03	SIGMAA	-.2728313E+02
BETA A	-.3821665E+00	ALPHAA	.4234651E+01	YAW E	-.9046163E+02	PTCH E	-.1355966E+02
ROLL E	-.2685600E+02	U	.6089738E+01	V	.2074800E+03	W	.5549118E+02
VEL R	.1828994E+03	GAM R	-.1766176E+02	HDG R	-.8799753E+02	SIGMAR	-.2752941E+02
BETA R	.2371827E+00	ALPHAR	.4732886E+01	U-WIND	-.2450681E+01	V-WIND	-.1737557E+01
W-WIND	0.	SIG-VA	.4095514E-02	SIG-GA	.5034000E-03	SIG-HA	.6558553E-03
SIG-H	.1788555E+00	SIG-LA	.2238592E-05	SIG-LO	.6355731E-05	SIG-SA	.1034719E-02
SIG-BA	.3041959E-03	SIG-AA	.5820410E-04	SIG-YE	.1034719E-02	SIG-PE	.3041959E-03
SIG-RE	.5820410E-04	SIG-U	.4113178E-02	SIG-V	.2085856E-02	SIG-W	.1746702E-02
MACH A	.5720400E+00	MACH R	.5671075E+00	PINF	.5274857E+05	TEMP	.2589085E+03
RHO	.7097440E+00	Q A	.1207865E+05	Q R	.1187125E+05	PSTAG	.6585226E+05
P	-.4046573E-01	Q	-.3621832E+00	R	-.1285330E+01	X ACCEL	-.2069421E+01
Y ACCEL	-.5438402E-01	Z ACCEL	-.7842529E+01	CXB	-.6167492E-01	CYB	-.1635707E-02
CZB	-.2337307E+00	CL	.2285385E+00	CD	.7876553E-01	L/D	.2901504E+01
CL-ROLL	-.1132551E-03	CM-PITCH	.1213865E-02	CN-YAW	.7229417E-04	PDOT	-.3822761E+00
QDOT	.2713692E+00	RDOT	.2112432E-01				

TIME	.2205000E+04	VEL A	.1873896E+03	GAM A	-.2109249E+02	HDG A	-.9514328E+02
ALTDE	.5074988E+04	LATD	.3501727E+02	LONG	.2423192E+03	SIGMAA	-.3057189E+02
BETA A	-.5520108E+00	ALPHAA	.4860421E+01	YAW E	-.9722627E+02	PTCH E	-.1661536E+02
ROLL E	-.2992161E+02	U	-.1239157E+02	V	.2096004E+03	W	.6743676E+02
VEL R	.1851941E+03	GAM R	-.2135473E+02	HDG R	-.9411990E+02	SIGMAR	-.3093977E+02
BETA R	.1336964E+00	ALPHAR	.5573617E+01	U-WIND	-.3281769E+01	V-WIND	-.2097097E+01
W-WIND	0.	SIG-VA	.1870322E-02	SIG-GA	.6238858E-03	SIG-HA	.1288359E-02
SIG-H	.1742716E+00	SIG-LA	.2223841E-05	SIG-LO	.6423661E-05	SIG-SA	.1346750E-02
SIG-BA	.2078121E-03	SIG-AA	.1642314E-03	SIG-YE	.1346750E-02	SIG-PE	.2078121E-03
SIG-RE	.1642314E-03	SIG-U	.3919823E-02	SIG-V	.2181831E-02	SIG-W	.1642427E-02
MACH A	.5780201E+00	MACH R	.5712476E+00	PINF	.5492982E+05	TEMP	.2616120E+03
RHO	.7314554E+00	Q A	.1284248E+05	Q R	.1254330E+05	PSTAG	.6888573E+05
P	-.1739449E+01	Q	.7638405E+00	R	-.1613023E+01	X ACCEL	-.2139022E+01
Y ACCEL	.2009905E+00	Z ACCEL	-.9389559E+01	CXB	-.5995180E-01	CYB	.5633296E-02
CZB	-.2631675E+00	CL	.2571415E+00	CD	.8203405E-01	L/D	.3134571E+01
CL-ROLL	.1628774E-03	CM-PITCH	-.2331465E-03	CN-YAW	-.1291158E-03	PDOT	.5846057E+00
QDOT	-.1066527E-01	RDOT	-.2428155E-01				

TIME	.2210000E+04	VEL A	.1878917E+03	GAM A	-.2230140E+02	HDG A	-.1035706E+03
ALTDE	.4725766E+04	LATD	.3501617E+02	LONG	.2423099E+03	SIGMAA	-.3014364E+02
BETA A	-.2126981E+00	ALPHAA	.4828375E+01	YAW E	-.1059250E+03	PTCH E	-.1800299E+02
ROLL E	-.2934081E+02	U	-.3683281E+02	V	.2139704E+03	W	.7130091E+02
VEL R	.1858663E+03	GAM R	-.2255773E+02	HDG R	-.1023912E+03	SIGMAR	-.3059623E+02
BETA R	.5982618E+00	ALPHAR	.5600660E+01	U-WIND	-.3956857E+01	V-WIND	-.1336399E+01
W-WIND	0.	SIG-VA	.2158096E-02	SIG-GA	.5901470E-03	SIG-HA	.1195051E-02
SIG-H	.1701147E+00	SIG-LA	.2223855E-05	SIG-LO	.6483174E-05	SIG-SA	.1335032E-02
SIG-BA	.2163893E-03	SIG-AA	.1886960E-03	SIG-YE	.1335032E-02	SIG-PE	.2163893E-03
SIG-RE	.1886960E-03	SIG-U	.3652908E-02	SIG-V	.2409124E-02	SIG-W	.1506723E-02
MACH A	.5762520E+00	MACH R	.5700402E+00	PINF	.5747377E+05	TEMP	.2646320E+03
RHO	.7565969E+00	Q A	.1335517E+05	Q R	.1306880E+05	PSTAG	.7197955E+05
P	.1483307E+01	Q	.1143702E+01	R	-.1239826E+01	X ACCEL	-.2940898E+01
Y ACCEL	-.1084273E+00	Z ACCEL	-.1066698E+02	CXB	-.7925358E-01	CYB	-.2921981E-02
CZB	-.2874619E+00	CL	.2797709E+00	CD	.1031684E+00	L/D	.2711789E+01
CL-ROLL	.1292406E-02	CM-PITCH	-.3220314E-03	CN-YAW	.9231529E-03	PDOT	.4953376E+01
QDOT	-.1086810E+00	RDOT	.5216915E+00				

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*     METBET1 USING LAIRS(USE8,10/81     ).AMABETH.NE0105 DYNAM. DATA              PAGE   56  *
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TIME	.2215000E+04	VEL A	.1851312E+03	GAM A	-.2171959E+02	HDG A	-.1108140E+03
ALTDE	.4373110E+04	LATD	.3501404E+02	LONG	.2423009E+03	SIGMAA	-.2105451E+02
BETA A	-.2521458E+00	ALPHAA	.5024116E+01	YAW E	-.1124536E+03	PTCH E	-.1693279E+02
ROLL E	-.2052247E+02	U	-.5672671E+02	V	.2203219E+03	W	.6851046E+02
VEL R	.1841860E+03	GAM R	-.2183676E+02	HDG R	-.1093776E+03	SIGMAR	-.2159106E+02
BETA R	.9478297E+00	ALPHAR	.5613284E+01	U-WIND	-.4386817E+01	V-WIND	.5212726E+00
W-WIND	0.	SIG-VA	.2439971E-02	SIG-GA	.5637267E-03	SIG-HA	.1097843E-02
SIG-H	.1663519E+00	SIG-LA	.2236593E-05	SIG-LO	.6534253E-05	SIG-SA	.1334701E-02
SIG-BA	.1486041E-03	SIG-AA	.2039139E-03	SIG-YE	.1334701E-02	SIG-PE	.1486041E-03
SIG-RE	.2039139E-03	SIG-U	.3370736E-02	SIG-V	.2656979E-02	SIG-W	.1385053E-02
MACH A	.5645962E+00	MACH R	.5617137E+00	PINF	.6013151E+05	TEMP	.2676305E+03
RHO	.7827153E+00	Q A	.1341321E+05	Q R	.1327660E+05	PSTAG	.7465278E+05
P	.6903370E+00	Q	.4861581E+00	R	-.1078826E+01	X ACCEL	-.2931057E+01
Y ACCEL	.2820613E-01	Z ACCEL	-.1085668E+02	CXB	-.7863790E-01	CYB	.7567478E-03
CZB	-.2912760E+00	CL	.2832702E+00	CD	.1038443E+00	L/D	.2727836E+01
CL-ROLL	-.4799232E-03	CM-PITCH	.1103475E-02	CN-YAW	.8203094E-03	PDOT	-.1738187E+01
QDOT	.2608526E+00	RDOT	.3385715E+00				

TIME	.2220000E+04	VEL A	.1828047E+03	GAM A	-.2073613E+02	HDG A	-.1159996E+03
ALTDE	.4039532E+04	LATD	.3501114E+02	LONG	.2422923E+03	SIGMAA	-.1189444E+02
BETA A	-.3550781E-01	ALPHAA	.4626993E+01	YAW E	-.1169556E+03	PTCH E	-.1619866E+02
ROLL E	-.1159281E+02	U	-.7017889E+02	V	.2263379E+03	W	.6472470E+02
VEL R	.1822658E+03	GAM R	-.2080028E+02	HDG R	-.1143230E+03	SIGMAR	-.1249396E+02
BETA R	.1483244E+01	ALPHAR	.5020839E+01	U-WIND	-.4765312E+01	V-WIND	.1601768E+01
W-WIND	0.	SIG-VA	.2646817E-02	SIG-GA	.5459641E-03	SIG-HA	.1018357E-02
SIG-H	.1628909E+00	SIG-LA	.2259255E-05	SIG-LO	.6579939E-05	SIG-SA	.1326318E-02
SIG-BA	.1228059E-03	SIG-AA	.2238779E-03	SIG-YE	.1326318E-02	SIG-PE	.1228059E-03
SIG-RE	.2238779E-03	SIG-U	.3137659E-02	SIG-V	.2848315E-02	SIG-W	.1294967E-02
MACH A	.5546338E+00	MACH R	.5529988E+00	PINF	.6272998E+05	TEMP	.2704048E+03
RHO	.8081612E+00	Q A	.1350339E+05	Q R	.1342389E+05	PSTAG	.7730883E+05
P	.2027522E+01	Q	.1449770E+00	R	-.4868323E+00	X ACCEL	-.2999050E+01
Y ACCEL	-.2767757E-01	Z ACCEL	-.1014734E+02	CXB	-.7991645E-01	CYB	-.7375312E-03
CZB	-.2703988E+00	CL	.2630708E+00	CD	.1014687E+00	L/D	.2592631E+01
CL-ROLL	.2158686E-03	CM-PITCH	.2684844E-04	CN-YAW	.2660960E-03	PDOT	.8455478E+00
QDOT	-.1067016E-01	RDOT	.1408778E+00				

TIME	.2225000E+04	VEL A	.1805983E+03	GAM A	-.2059357E+02	HDG A	-.1177172E+03
ALTDE	.3719973E+04	LATD	.3500786E+02	LONG	.2422839E+03	SIGMAA	.1021004E+01
BETA A	-.3102039E+00	ALPHAA	.4337685E+01	YAW E	-.1173146E+03	PTCH E	-.1626162E+02
ROLL E	.8819026E+00	U	-.7342525E+02	V	.2293782E+03	W	.6352303E+02
VEL R	.1805461E+03	GAM R	-.2059979E+02	HDG R	-.1157512E+03	SIGMAR	.3294648E+00
BETA R	.1530145E+01	ALPHAR	.4322219E+01	U-WIND	-.5205011E+01	V-WIND	.2559314E+01
W-WIND	0.	SIG-VA	.2696916E-02	SIG-GA	.5350569E-03	SIG-HA	.9760849E-03
SIG-H	.1596420E+00	SIG-LA	.2289698E-05	SIG-LO	.6623965E-05	SIG-SA	.1311201E-02
SIG-BA	.2124899E-03	SIG-AA	.2489271E-03	SIG-YE	.1311201E-02	SIG-PE	.2124899E-03
SIG-RE	.2489271E-03	SIG-U	.3011197E-02	SIG-V	.2892323E-02	SIG-W	.1253022E-02
MACH A	.5453357E+00	MACH R	.5451781E+00	PINF	.6529862E+05	TEMP	.2729932E+03
RHO	.8332771E+00	Q A	.1358898E+05	Q R	.1358112E+05	PSTAG	.7993299E+05
P	.7676682E-02	Q	.2082839E+00	R	.4885914E-02	X ACCEL	-.3153154E+01
Y ACCEL	.1016464E+00	Z ACCEL	-.9462546E+01	CXB	-.8348534E-01	CYB	.2691270E-02
CZB	-.2505377E+00	CL	.2435057E+00	CD	.1021955E+00	L/D	.2382743E+01
CL-ROLL	-.1064118E-03	CM-PITCH	-.7281107E-04	CN-YAW	-.1695911E-03	PDOT	-.4226229E+00
QDOT	-.1820914E-01	RDOT	-.9031420E-01				

TIME	.2230000E+04	VEL A	.1775092E+03	GAM A	-.2014200E+02	HDG A	-.1175897E+03
ALTDE	.3405496E+04	LATD	.3500458E+02	LONG	.2422756E+03	SIGMAA	.2587968E+01
BETA A	-.2379751E+00	ALPHAA	.4709704E+01	YAW E	-.1171235E+03	PTCH E	-.1544722E+02
ROLL E	.2435590E+01	U	-.7215348E+02	V	.2303222E+03	W	.6112491E+02
VEL R	.1783963E+03	GAM R	-.2003752E+02	HDG R	-.1155003E+03	SIGMAR	.1872529E+01
BETA R	.1718768E+01	ALPHAR	.4528952E+01	U-WIND	-.5029772E+01	V-WIND	.3568480E+01
W-WIND	0.	SIG-VA	.2674591E-02	SIG-GA	.5264168E-03	SIG-HA	.9539359E-03
SIG-H	.1565316E+00	SIG-LA	.2326786E-05	SIG-LO	.6669747E-05	SIG-SA	.1314327E-02
SIG-BA	.2346674E-03	SIG-AA	.2525972E-03	SIG-YE	.1314327E-02	SIG-PE	.2346674E-03
SIG-RE	.2525972E-03	SIG-U	.2943420E-02	SIG-V	.2865334E-02	SIG-W	.1233249E-02
MACH A	.5335998E+00	MACH R	.5362667E+00	PINF	.6790460E+05	TEMP	.2754624E+03
RHO	.8587645E+00	Q A	.1352961E+05	Q R	.1366519E+05	PSTAG	.8242968E+05
P	.1092904E+01	Q	.6161413E+00	R	.2079507E+00	X ACCEL	-.3028871E+01
Y ACCEL	-.7114456E-01	Z ACCEL	-.1065245E+02	CXB	-.8053867E-01	CYB	-.1891757E-02
CZB	-.2835181E+00	CL	.2759480E+00	CD	.1035456E+00	L/D	.2664989E+01
CL-ROLL	.7898465E-05	CM-PITCH	-.1657561E-04	CN-YAW	.2578161E-03	PDOT	.5273960E-01
QDOT	-.1001975E-02	RDOT	.1130528E+00				

TIME	.2235000E+04	VEL A	.1733911E+03	GAM A	-.1978193E+02	HDG A	-.1164625E+03
ALTDE	.3108311E+04	LATD	.3500142E+02	LONG	.2422673E+03	SIGMAA	.3112596E+01
BETA A	.1757995E+00	ALPHAA	.4173879E+01	YAW E	-.1164092E+03	PTCH E	-.1560467E+02
ROLL E	.3102784E+01	U	-.6847828E+02	V	.2306906E+03	W	.5868268E+02
VEL R	.1757940E+03	GAM R	-.1950050E+02	HDG R	-.1144086E+03	SIGMAR	.2429563E+01
BETA R	.2094361E+01	ALPHAR	.3799229E+01	U-WIND	-.4227353E+01	V-WIND	.4835280E+01
W-WIND	0.	SIG-VA	.2612097E-02	SIG-GA	.5183631E-03	SIG-HA	.9395185E-03
SIG-H	.1535361E+00	SIG-LA	.2369774E-05	SIG-LO	.6717757E-05	SIG-SA	.1317976E-02
SIG-BA	.2475762E-03	SIG-AA	.2612350E-03	SIG-YE	.1317976E-02	SIG-PE	.2475762E-03
SIG-RE	.2612350E-03	SIG-U	.2897778E-02	SIG-V	.2798403E-02	SIG-W	.1224158E-02
MACH A	.5191032E+00	MACH R	.5262971E+00	PINF	.7044080E+05	TEMP	.2777144E+03
RHO	.8836151E+00	Q A	.1328271E+05	Q R	.1365341E+05	PSTAG	.8464728E+05
P	-.4170791E+00	Q	-.2037108E+00	R	.2198846E+00	X ACCEL	-.3192274E+01
Y ACCEL	.2095512E-01	Z ACCEL	-.8944658E+01	CXB	-.8645344E-01	CYB	.5675086E-03
CZB	-.2422400E+00	CL	.2353052E+00	CD	.1038552E+00	L/D	.2265704E+01
CL-ROLL	.1410126E-03	CM-PITCH	.1769024E-02	CN-YAW	-.1351134E-03	PDOT	.5162187E+00
QDOT	.4309420E+00	RDOT	-.5176884E-01				

TIME	.2240000E+04	VEL A	.1712419E+03	GAM A	-.2107268E+02	HDG A	-.1160453E+03
ALTDE	.2809558E+04	LATD	.3499840E+02	LONG	.2422591E+03	SIGMAA	-.1009492E+01
BETA A	.5017654E-01	ALPHAA	.4031203E+01	YAW E	-.1161718E+03	PTCH E	-.1704294E+02
ROLL E	-.9663742E+00	U	-.6655444E+02	V	.2324762E+03	W	.6157034E+02
VEL R	.1745112E+03	GAM R	-.2065965E+02	HDG R	-.1140534E+03	SIGMAR	-.1712709E+01
BETA R	.1920732E+01	ALPHAR	.3662514E+01	U-WIND	-.3606380E+01	V-WIND	.5546845E+01
W-WIND	0.	SIG-VA	.2576263E-02	SIG-GA	.5098981E-03	SIG-HA	.9170655E-03
SIG-H	.1506593E+00	SIG-LA	.2417946E-05	SIG-LO	.6768114E-05	SIG-SA	.1326372E-02
SIG-BA	.2075724E-03	SIG-AA	.2767158E-03	SIG-YE	.1326372E-02	SIG-PE	.2075724E-03
SIG-RE	.2767158E-03	SIG-U	.2828471E-02	SIG-V	.2758104E-02	SIG-W	.1208188E-02
MACH A	.5106738E+00	MACH R	.5204234E+00	PINF	.7306473E+05	TEMP	.2798886E+03
RHO	.9094102E+00	Q A	.1333367E+05	Q R	.1384765E+05	PSTAG	.8729522E+05
P	.1228174E+00	Q	.1515574E+00	R	.6810067E-01	X ACCEL	-.2820449E+01
Y ACCEL	.3747795E-01	Z ACCEL	-.8990469E+01	CXB	-.7608457E-01	CYB	.1011007E-02
CZB	-.2425273E+00	CL	.2365786E+00	CD	.9294593E-01	L/D	.2545336E+01
CL-ROLL	-.9762211E-04	CM-PITCH	-.2581197E-03	CN-YAW	-.3576963E-03	PDOT	-.3982285E+00
QDOT	-.6321319E-01	RDOT	-.1759959E+00				

TIME	.2245000E+04	VEL A	.1709199E+03	GAM A	-.2093396E+02	HDG A	-.1160605E+03
ALTDE	.2499804E+04	LATD	.3499538E+02	LONG	.2422509E+03	SIGMAA	-.3344787E+00
BETA A	.1526506E+00	ALPHAA	.4463032E+01	YAW E	-.1162464E+03	PTCH E	-.1647179E+02
ROLL E	-.2688936E+00	U	-.6714309E+02	V	.2323017E+03	W	.6106825E+02
VEL R	.1747054E+03	GAM R	-.2045978E+02	HDG R	-.1142173E+03	SIGMAR	-.9779150E+00
BETA R	.1882273E+01	ALPHAR	.4008625E+01	U-WIND	-.2989129E+01	V-WIND	.5872138E+01
W-WIND	0.	SIG-VA	.2583536E-02	SIG-GA	.5033954E-03	SIG-HA	.9051381E-03
SIG-H	.1479122E+00	SIG-LA	.2470571E-05	SIG-LO	.6819804E-05	SIG-SA	.1330238E-02
SIG-BA	.2192521E-03	SIG-AA	.2820556E-03	SIG-YE	.1330238E-02	SIG-PE	.2192521E-03
SIG-RE	.2820556E-03	SIG-U	.2793285E-02	SIG-V	.2759471E-02	SIG-W	.1191684E-02
MACH A	.5077681E+00	MACH R	.5190141E+00	PINF	.7586665E+05	TEMP	.2820375E+03
RHO	.9370902E+00	Q A	.1368789E+05	Q R	.1430092E+05	PSTAG	.9046453E+05
P	-.2312704E+00	Q	-.1973215E-01	R	-.2974089E-02	X ACCEL	-.2798308E+01
Y ACCEL	-.7712592E-01	Z ACCEL	-.9595518E+01	CXB	-.7352669E-01	CYB	-.2026515E-02
CZB	-.2521262E+00	CL	.2456401E+00	CD	.9292316E-01	L/D	.2643476E+01
CL-ROLL	.1188939E-03	CM-PITCH	.8183549E-04	CN-YAW	.1205031E-03	PDOT	.4694097E+00
QDOT	.2060390E-01	RDOT	.6845964E-01				

TIME	.2250000E+04	VEL A	.1698828E+03	GAM A	-.1967872E+02	HDG A	-.1161448E+03
ALTDE	.2199954E+04	LATD	.3499233E+02	LONG	.2422427E+03	SIGMAA	-.6615558E+00
BETA A	.6792358E-01	ALPHAA	.4945993E+01	YAW E	-.1162738E+03	PTCH E	-.1473379E+02
ROLL E	-.6204440E+00	U	-.6807902E+02	V	.2322114E+03	W	.5720728E+02
VEL R	.1738324E+03	GAM R	-.1921382E+02	HDG R	-.1145028E+03	SIGMAR	-.1201768E+01
BETA R	.1623631E+01	ALPHAR	.4506327E+01	U-WIND	-.2406434E+01	V-WIND	.5772111E+01
W-WIND	0.	SIG-VA	.2596147E-02	SIG-GA	.4968244E-03	SIG-HA	.8929412E-03
SIG-H	.1452850E+00	SIG-LA	.2527184E-05	SIG-LO	.6872359E-05	SIG-SA	.1340297E-02
SIG-BA	.2234419E-03	SIG-AA	.2759892E-03	SIG-YE	.1340297E-02	SIG-PE	.2234419E-03
SIG-RE	.2759892E-03	SIG-U	.2757576E-02	SIG-V	.2765741E-02	SIG-W	.1174777E-02
MACH A	.5029355E+00	MACH R	.5146284E+00	PINF	.7866073E+05	TEMP	.2840052E+03
RHO	.9648701E+00	Q A	.1392315E+05	Q R	.1457808E+05	PSTAG	.9349162E+05
P	-.3376337E-01	Q	.7325963E+00	R	-.2012753E-01	X ACCEL	-.3034006E+01
Y ACCEL	-.3793185E-01	Z ACCEL	-.1074376E+02	CXB	-.7836540E-01	CYB	-.9797425E-03
CZB	-.2775008E+00	CL	.2697111E+00	CD	.1019988E+00	L/D	.2644257E+01
CL-ROLL	-.3636909E-05	CM-PITCH	.4803026E-03	CN-YAW	-.3523306E-04	PDOT	-.1743071E-01
QDOT	.1230860E+00	RDOT	-.1715624E-01				

TIME	.2255000E+04	VEL A	.1656576E+03	GAM A	-.1833784E+02	HDG A	-.1164606E+03
ALTDE	.1928265E+04	LATD	.3498927E+02	LONG	.2422346E+03	SIGMAA	-.2409623E+01
BETA A	.1043066E+00	ALPHAA	.4233253E+01	YAW E	-.1167513E+03	PTCH E	-.1410650E+02
ROLL E	-.2324477E+01	U	-.6812185E+02	V	.2354027E+03	W	.5211910E+02
VEL R	.1694802E+03	GAM R	-.1791003E+02	HDG R	-.1149872E+03	SIGMAR	-.2862821E+01
BETA R	.1522774E+01	ALPHAR	.3876302E+01	U-WIND	-.1943743E+01	V-WIND	.5400648E+01
W-WIND	0.	SIG-VA	.2028411E-02	SIG-GA	.5021832E-03	SIG-HA	.1079226E-02
SIG-H	.1427689E+00	SIG-LA	.2586781E-05	SIG-LO	.6925637E-05	SIG-SA	.1402864E-02
SIG-BA	.1110380E-03	SIG-AA	.2631600E-03	SIG-YE	.1402864E-02	SIG-PE	.1110380E-03
SIG-RE	.2631600E-03	SIG-U	.2663994E-02	SIG-V	.2752025E-02	SIG-W	.1152198E-02
MACH A	.4889836E+00	MACH R	.5002669E+00	PINF	.8126434E+05	TEMP	.2856844E+03
RHO	.9909478E+00	Q A	.1359701E+05	Q R	.1423176E+05	PSTAG	.9569844E+05
P	-.3981102E+00	Q	-.1708952E+00	R	-.1441398E+00	X ACCEL	-.3227807E+01
Y ACCEL	-.1940543E-01	Z ACCEL	-.9418791E+01	CXB	-.8536359E-01	CYB	-.5132019E-03
CZB	-.2490923E+00	CL	.2421006E+00	CD	.1035433E+00	L/D	.2338158E+01
CL-ROLL	-.5467798E-03	CM-PITCH	.1457112E-02	CN-YAW	-.9643685E-04	PDOT	-.2103515E+01
QDOT	.3654868E+00	RDOT	-.9594103E-01				

TIME	.2260000E+04	VEL A	.1625213E+03	GAM A	-.1874386E+02	HDG A	-.1177808E+03
ALTDE	.1667654E+04	LATD	.3498616E+02	LONG	.2422267E+03	SIGMAA	-.5955843E+01
BETA A	-.3082422E+00	ALPHAA	.3829281E+01	YAW E	-.1178751E+03	PTCH E	-.1490328E+02
ROLL E	-.5938834E+01	U	-.7008287E+02	V	.2405538E+03	W	.5225642E+02
VEL R	.1659192E+03	GAM R	-.1835785E+02	HDG R	-.1164259E+03	SIGMAR	-.6385393E+01
BETA R	.1010242E+01	ALPHAR	.3583590E+01	U-WIND	-.1693353E+01	V-WIND	.4774132E+01
W-WIND	0.	SIG-VA	.2050392E-02	SIG-GA	.4889830E-03	SIG-HA	.1044774E-02
SIG-H	.1403659E+00	SIG-LA	.2647864E-05	SIG-LO	.6979534E-05	SIG-SA	.1401985E-02
SIG-BA	.1385890E-03	SIG-AA	.2762397E-03	SIG-YE	.1401985E-02	SIG-PE	.1385890E-03
SIG-RE	.2762397E-03	SIG-U	.2537453E-02	SIG-V	.2769314E-02	SIG-W	.1122561E-02
MACH A	.4787568E+00	MACH R	.4884658E+00	PINF	.8382837E+05	TEMP	.2871953E+03
RHO	.1016836E+01	Q A	.1344546E+05	Q R	.1399633E+05	PSTAG	.9806674E+05
P	-.2976793E-01	Q	-.2935781E+00	R	-.4173487E+00	X ACCEL	-.3163883E+01
Y ACCEL	.8759394E-01	Z ACCEL	-.9141695E+01	CXB	-.8460924E-01	CYB	.2342456E-02
CZB	-.2444692E+00	CL	.2382729E+00	CD	.1007469E+00	L/D	.2365063E+01
CL-ROLL	-.9250214E-04	CM-PITCH	-.2925806E-02	CN-YAW	-.1323683E-03	PDOT	-.3628407E+00
QDOT	-.7237322E+00	RDOT	-.7075889E-01				

TIME	.2265000E+04	VEL A	.1620140E+03	GAM A	-.2040340E+02	HDG A	-.1189682E+03
ALTDE	.1395463E+04	LATD	.3498295E+02	LONG	.2422192E+03	SIGMAA	-.4526974E+01
BETA A	.2479007E+00	ALPHAA	.3927274E+01	YAW E	-.1195484E+03	PTCH E	-.1650698E+02
ROLL E	-.4334697E+01	U	-.7244183E+02	V	.2448955E+03	W	.5648258E+02
VEL R	.1646781E+03	GAM R	-.2005901E+02	HDG R	-.1179245E+03	SIGMAR	-.4884470E+01
BETA R	.1252179E+01	ALPHAR	.3664381E+01	U-WIND	-.1102511E+01	V-WIND	.3826207E+01
W-WIND	0.	SIG-VA	.2078024E-02	SIG-GA	.4788002E-03	SIG-HA	.1018754E-02
SIG-H	.1380756E+00	SIG-LA	.2709485E-05	SIG-LO	.7033935E-05	SIG-SA	.1400181E-02
SIG-BA	.1228764E-03	SIG-AA	.2961317E-03	SIG-YE	.1400181E-02	SIG-PE	.1228764E-03
SIG-RE	.2961317E-03	SIG-U	.2435000E-02	SIG-V	.2795473E-02	SIG-W	.1099089E-02
MACH A	.4757557E+00	MACH R	.4835787E+00	PINF	.8657845E+05	TEMP	.2886619E+03
RHO	.1044859E+01	Q A	.1371301E+05	Q R	.1416769E+05	PSTAG	.1010899E+06
P	.7758282E+00	Q	.3327501E-01	R	-.2048125E+00	X ACCEL	-.2543903E+01
Y ACCEL	.2114643E-01	Z ACCEL	-.8250153E+01	CXB	-.6669664E-01	CYB	.5544219E-03
CZB	-.2163044E+00	CL	.2112284E+00	CD	.8135476E-01	L/D	.2596387E+01
CL-ROLL	.1387222E-03	CM-PITCH	.4309924E-02	CN-YAW	.2049179E-04	PDOT	.5378974E+00
QDOT	.1084967E+01	RDOT	.2200807E-01				

TIME	.2270000E+04	VEL A	.1657127E+03	GAM A	-.2031917E+02	HDG A	-.1194458E+03
ALTDE	.1107869E+04	LATD	.3497961E+02	LONG	.2422117E+03	SIGMAA	-.1947060E+01
BETA A	.5151470E+00	ALPHAA	.5054342E+01	YAW E	-.1201552E+03	PTCH E	-.1528378E+02
ROLL E	-.1707217E+01	U	-.7613575E+02	V	.2437432E+03	W	.5754364E+02
VEL R	.1676441E+03	GAM R	-.2007494E+02	HDG R	-.1189161E+03	SIGMAR	-.2126908E+01
BETA R	.1020649E+01	ALPHAR	.4827919E+01	U-WIND	-.2593028E+00	V-WIND	.2501815E+01
W-WIND	0.	SIG-VA	.2101642E-02	SIG-GA	.4742107E-03	SIG-HA	.1032331E-02
SIG-H	.1358923E+00	SIG-LA	.2772308E-05	SIG-LO	.7088826E-05	SIG-SA	.1411585E-02
SIG-BA	.1032571E-03	SIG-AA	.2949131E-03	SIG-YE	.1411585E-02	SIG-PE	.1032571E-03
SIG-RE	.2949131E-03	SIG-U	.2432877E-02	SIG-V	.2852183E-02	SIG-W	.1089388E-02
MACH A	.4854263E+00	MACH R	.4910839E+00	PINF	.8956724E+05	TEMP	.2900796E+03
RHO	.1075646E+01	Q A	.1476899E+05	Q R	.1511526E+05	PSTAG	.1052321E+06
P	.5036990E-01	Q	.1175215E+01	R	-.1322911E-01	X ACCEL	-.1797246E+01
Y ACCEL	-.8469154E-01	Z ACCEL	-.1040240E+02	CXB	-.4374758E-01	CYB	-.2061515E-02
CZB	-.2532096E+00	CL	.2483708E+00	CD	.6588537E-01	L/D	.3769741E+01
CL-ROLL	.1643853E-03	CM-PITCH	.3549358E-02	CN-YAW	.2768877E-03	PDOT	.7111225E+00
QDOT	.9647498E+00	RDOT	.1584509E+00				

TIME	.2275000E+04	VEL A	.1661263E+03	GAM A	-.1402510E+02	HDG A	-.1189436E+03
ALTDE	.8538238E+03	LATD	.3497609E+02	LONG	.2422040E+03	SIGMAA	.5447554E+01
BETA A	.2550756E+00	ALPHAA	.6901588E+01	YAW E	-.1185390E+03	PTCH E	-.7130275E+01
ROLL E	.5388516E+01	U	-.7867268E+02	V	.2394737E+03	W	.4026021E+02
VEL R	.1673390E+03	GAM R	-.1392141E+02	HDG R	-.1189710E+03	SIGMAR	.5454581E+01
BETA R	.2187812E+00	ALPHAR	.6800886E+01	U-WIND	.6726689E+00	V-WIND	.1055990E+01
W-WIND	0.	SIG-VA	.2094517E-02	SIG-GA	.4708635E-03	SIG-HA	.1065850E-02
SIG-H	.1337976E+00	SIG-LA	.2837719E-05	SIG-LO	.7143919E-05	SIG-SA	.1450840E-02
SIG-BA	.1168831E-03	SIG-AA	.2528743E-03	SIG-YE	.1450840E-02	SIG-PE	.1168831E-03
SIG-RE	.2528743E-03	SIG-U	.2494122E-02	SIG-V	.2889265E-02	SIG-W	.1091886E-02
MACH A	.4856905E+00	MACH R	.4892359E+00	PINF	.9228122E+05	TEMP	.2912125E+03
RHO	.1103928E+01	Q A	.1523307E+05	Q R	.1545627E+05	PSTAG	.1084393E+06
P	.1948712E+01	Q	.2190108E+01	R	.7132035E+00	X ACCEL	-.1476656E+01
Y ACCEL	-.2163014E+00	Z ACCEL	-.1462906E+02	CXB	-.3484614E-01	CYB	-.5104281E-02
CZB	-.3452167E+00	CL	.3385280E+00	CD	.7607638E-01	L/D	.4449844E+01
CL-ROLL	-.2599624E-03	CM-PITCH	.6436502E-03	CN-YAW	.2014345E-03	PDOT	-.1101979E+01
QDOT	.2011558E+00	RDOT	.1833864E-01				

TIME	.2280000E+04	VEL A	.1597984E+03	GAM A	-.5927635E+01	HDG A	-.1162390E+03
ALTDE	.7142656E+03	LATD	.3497272E+02	LONG	.2421962E+03	SIGMAA	.4373763E+01
BETA A	-.6526658E-01	ALPHAA	.7035864E+01	YAW E	-.1156391E+03	PTCH E	.1082986E+01
ROLL E	.4344346E+01	U	-.7027169E+02	V	.2390137E+03	W	.1650274E+02
VEL R	.1597984E+03	GAM R	-.5927635E+01	HDG R	-.1162390E+03	SIGMAR	.4373762E+01
BETA R	-.6526515E-01	ALPHAR	.7035864E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1977101E-02	SIG-GA	.4643638E-03	SIG-HA	.1050966E-02
SIG-H	.1317663E+00	SIG-LA	.2906024E-05	SIG-LO	.7199508E-05	SIG-SA	.1486171E-02
SIG-BA	.1184789E-03	SIG-AA	.2457638E-03	SIG-YE	.1486171E-02	SIG-PE	.1184789E-03
SIG-RE	.2457638E-03	SIG-U	.2515918E-02	SIG-V	.2720660E-02	SIG-W	.1111848E-02
MACH A	.4667315E+00	MACH R	.4667315E+00	PINF	.9380259E+05	TEMP	.2917848E+03
RHO	.1119926E+01	Q A	.1429894E+05	Q R	.1429894E+05	PSTAG	.1089023E+06
P	-.1786733E+01	Q	.1823966E+01	R	.7766802E-01	X ACCEL	-.1315632E+01
Y ACCEL	-.9240285E-01	Z ACCEL	-.1419560E+02	CXB	-.3307307E-01	CYB	-.2322872E-02
CZB	-.3566053E+00	CL	.3498688E+00	CD	.7650482E-01	L/D	.4573161E+01
CL-ROLL	.1195613E-03	CM-PITCH	-.1161133E-02	CN-YAW	-.2136459E-03	PDOT	.4590267E+00
QDOT	-.3091262E+00	RDOT	-.4832732E-01				

TIME	.2285000E+04	VEL A	.1488873E+03	GAM A	-.1460076E+01	HDG A	-.1152869E+03
ALTDE	.6705089E+03	LATD	.3496972E+02	LONG	.2421886E+03	SIGMAA	-.1514141E+00
BETA A	-.1088276E+00	ALPHAA	.6168919E+01	YAW E	-.1151947E+03	PTCH E	.4709111E+01
ROLL E	-.1546597E+00	U	-.6357679E+02	V	.2470138E+03	W	.3793703E+01
VEL R	.1488873E+03	GAM R	-.1460076E+01	HDG R	-.1152869E+03	SIGMAR	-.1514141E+00
BETA R	-.1088262E+00	ALPHAR	.6168919E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1914588E-02	SIG-GA	.4536183E-03	SIG-HA	.9838377E-03
SIG-H	.1298087E+00	SIG-LA	.2974385E-05	SIG-LO	.7255728E-05	SIG-SA	.1503798E-02
SIG-BA	.1074646E-03	SIG-AA	.2574182E-03	SIG-YE	.1503798E-02	SIG-PE	.1074646E-03
SIG-RE	.2574182E-03	SIG-U	.2373160E-02	SIG-V	.2577396E-02	SIG-W	.1112643E-02
MACH A	.4347348E+00	MACH R	.4347348E+00	PINF	.9428414E+05	TEMP	.2919567E+03
RHO	.1125013E+01	Q A	.1246931E+05	Q R	.1246931E+05	PSTAG	.1073581E+06
P	-.9033816E+00	Q	.3408073E+00	R	.8377298E-02	X ACCEL	-.1249472E+01
Y ACCEL	-.1323590E+00	Z ACCEL	-.1092514E+02	CXB	-.3601821E-01	CYB	-.3815481E-02
CZB	-.3149362E+00	CL	.3092420E+00	CD	.6965270E-01	L/D	.4439771E+01
CL-ROLL	.2230652E-03	CM-PITCH	.2123155E-04	CN-YAW	.2898156E-04	PDOT	.7859096E+00
QDOT	.4405495E-02	RDOT	.3548022E-01				

TIME	.2290000E+04	VEL A	.1359424E+03	GAM A	-.6135922E+00	HDG A	-.1158609E+03
ALTDE	.6592914E+03	LATD	.3496695E+02	LONG	.2421815E+03	SIGMAA	-.1588961E+01
BETA A	-.2451071E+00	ALPHAA	.6711239E+01	YAW E	-.1158029E+03	PTCH E	.6101851E+01
ROLL E	-.1600551E+01	U	-.5929306E+02	V	.2592817E+03	W	.1455807E+01
VEL R	.1359424E+03	GAM R	-.6135922E+00	HDG R	-.1158609E+03	SIGMAR	-.1588961E+01
BETA R	-.2451057E+00	ALPHAR	.6711239E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1894768E-02	SIG-GA	.4414999E-03	SIG-HA	.8963239E-03
SIG-H	.1279408E+00	SIG-LA	.3039644E-05	SIG-LO	.7312131E-05	SIG-SA	.1513906E-02
SIG-BA	.1093267E-03	SIG-AA	.2645394E-03	SIG-YE	.1513906E-02	SIG-PE	.1093267E-03
SIG-RE	.2645394E-03	SIG-U	.2154428E-02	SIG-V	.2475671E-02	SIG-W	.1103008E-02
MACH A	.3969076E+00	MACH R	.3969076E+00	PINF	.9440795E+05	TEMP	.2920002E+03
RHO	.1126322E+01	Q A	.1040740E+05	Q R	.1040740E+05	PSTAG	.1052353E+06
P	.7579330E+00	Q	.2161283E+00	R	-.4311995E-01	X ACCEL	-.1588033E+01
Y ACCEL	-.7152283E-01	Z ACCEL	-.9433878E+01	CXB	-.5484713E-01	CYB	-.2470239E-02
CZB	-.3258251E+00	CL	.3171827E+00	CD	.9254903E-01	L/D	.3427186E+01
CL-ROLL	.4092009E-03	CM-PITCH	.3781224E-02	CN-YAW	.1866923E-03	PDOT	.1212884E+01
QDOT	.7234963E+00	RDOT	.9376516E-01				

TIME	.2295000E+04	VEL A	.1236707E+03	GAM A	-.8282154E+00	HDG A	-.1161211E+03		
ALTDE	.6517862E+03	LATD	.3496439E+02	LONG	.2421751E+03	SIGMAA	.1141688E+01		
BETA A	-.4932912E+00	ALPHAA	.7964804E+01	YAW E	-.1154694E+03	PTCH E	.7125223E+01		
ROLL E	.1143225E+01	U	-.5444278E+02	V	.2705865E+03	W	.1787609E+01		
VEL R	.1236707E+03	GAM R	-.8282154E+00	HDG R	-.1161211E+03	SIGMAR	.1141688E+01		
BETA R	-.4932899E+00	ALPHAR	.7964804E+01	U-WIND	0.	V-WIND	0.		
W-WIND	0.	SIG-VA	.1867157E-02	SIG-GA	.4322462E-03	SIG-HA	.8192445E-03		
SIG-H	.1261685E+00	SIG-LA	.3100283E-05	SIG-LO	.7368447E-05	SIG-SA	.1522947E-02		
SIG-BA	.1127480E-03	SIG-AA	.2698982E-03	SIG-YE	.1522947E-02	SIG-PE	.1127480E-03		
SIG-RE	.2698982E-03	SIG-U	.1976363E-02	SIG-V	.2367300E-02	SIG-W	.1101425E-02		
MACH A	.3610605E+00	MACH R	.3610605E+00	PINF	.9449086E+05	TEMP	.2920292E+03		
RHO	.1127200E+01	Q A	.8619948E+04	Q R	.8619947E+04	PSTAG	.1033984E+06		
P	.3802370E+00	Q	.2765117E+00	R	.1515057E+00	X ACCEL	-.1102250E+01		
Y ACCEL	.1923669E-01	Z ACCEL	-.9659371E+01	CXB	-.4596330E-01	CYB	.8021609E-03		
CZB	-.4027911E+00	CL	.3925367E+00	CD	.1013326E+00	L/D	.3873746E+01		
CL-ROLL	-.8837515E-04	CM-PITCH	.2148429E-02	CN-YAW	.5196543E-04	PDOT	-.2118685E+00		
QDOT	.3417000E+00	RDOT	.9122476E-02						

TIME	.2300000E+04	VEL A	.1124224E+03	GAM A	-.3146232E+00	HDG A	-.1153985E+03
ALTDE	.6457046E+03	LATD	.3496207E+02	LONG	.2421693E+03	SIGMAA	.9858585E-01
BETA A	-.6306199E-01	ALPHAA	.9156126E+01	YAW E	-.1153196E+03	PTCH E	.8841381E+01
ROLL E	.9941936E-01	U	-.4821849E+02	V	.2800701E+03	W	.6173320E+00
VEL R	.1124224E+03	GAM R	-.3146232E+00	HDG R	-.1153985E+03	SIGMAR	.9858585E-01
BETA R	-.6306072E-01	ALPHAR	.9156126E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1818814E-02	SIG-GA	.4254907E-03	SIG-HA	.7555124E-03
SIG-H	.1245045E+00	SIG-LA	.3156966E-05	SIG-LO	.7424500E-05	SIG-SA	.1534050E-02
SIG-BA	.1126760E-03	SIG-AA	.2789203E-03	SIG-YE	.1534050E-02	SIG-PE	.1126760E-03
SIG-RE	.2789203E-03	SIG-U	.1848403E-02	SIG-V	.2240497E-02	SIG-W	.1109409E-02
MACH A	.3282074E+00	MACH R	.3282074E+00	PINF	.9455809E+05	TEMP	.2920526E+03
RHO	.1127911E+01	Q A	.7127716E+04	Q R	.7127716E+04	PSTAG	.1018822E+06
P	-.9191356E+00	Q	.2261299E+00	R	-.1904405E+00	X ACCEL	-.5923910E+00
Y ACCEL	.7756572E-01	Z ACCEL	-.1049949E+02	CXB	-.2987398E-01	CYB	.3911600E-02
CZB	-.5294837E+00	CL	.5179835E+00	CD	.1137476E+00	L/D	.4553799E+01
CL-ROLL	.1101700E-03	CM-PITCH	-.2888404E-02	CN-YAW	-.3023957E-03	PDOT	.2071835E+00
QDOT	-.3764624E+00	RDOT	-.6730616E-01				

TIME	.2305000E+04	VEL A	.1021185E+03	GAM A	-.1929900E+00	HDG A	-.1156743E+03
ALTDE	.6425871E+03	LATD	.3495999E+02	LONG	.2421640E+03	SIGMAA	.2362834E+00
BETA A	-.2556341E+00	ALPHAA	.9717125E+01	YAW E	-.1153783E+03	PTCH E	.9523000E+01
ROLL E	.2387082E+00	U	-.4424300E+02	V	.2895985E+03	W	.3439662E+00
VEL R	.1021185E+03	GAM R	-.1929901E+00	HDG R	-.1156743E+03	SIGMAR	.2362834E+00
BETA R	-.2556328E+00	ALPHAR	.9717125E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1886135E-02	SIG-GA	.5701507E-03	SIG-HA	.1029845E-02
SIG-H	.1229573E+00	SIG-LA	.3209736E-05	SIG-LO	.7479897E-05	SIG-SA	.1535854E-02
SIG-BA	.1109571E-03	SIG-AA	.3289745E-03	SIG-YE	.1535854E-02	SIG-PE	.1109571E-03
SIG-RE	.3289745E-03	SIG-U	.1735340E-02	SIG-V	.2153769E-02	SIG-W	.1117701E-02
MACH A	.2981199E+00	MACH R	.2981199E+00	PINF	.9459258E+05	TEMP	.2920646E+03
RHO	.1128276E+01	Q A	.5882933E+04	Q R	.5882933E+04	PSTAG	.1006094E+06
P	-.1619383E+00	Q	.6453195E-01	R	-.2436554E-01	X ACCEL	-.3076890E+00
Y ACCEL	-.1428480E-01	Z ACCEL	-.1037309E+02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.5591007E+00
QDOT	-.4803926E+00	RDOT	-.2262825E-01				

TIME	.2310000E+04	VEL A	.9305863E+02	GAM A	-.4477943E-01	HDG A	-.1158110E+03
ALTDE	.6414278E+03	LATD	.3495808E+02	LONG	.2421592E+03	SIGMAA	-.4532835E+00
BETA A	-.2398391E+00	ALPHAA	.8068650E+01	YAW E	-.1156354E+03	PTCH E	.8025514E+01
ROLL E	-.4579521E+00	U	-.4051805E+02	V	.2978686E+03	W	.7272983E-01
VEL R	.9305863E+02	GAM R	-.4477943E-01	HDG R	-.1158110E+03	SIGMAR	-.4532835E+00
BETA R	-.2398379E+00	ALPHAR	.8068649E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1849685E-02	SIG-GA	.5767696E-03	SIG-HA	.9686296E-03
SIG-H	.1215379E+00	SIG-LA	.3258726E-05	SIG-LO	.7534343E-05	SIG-SA	.1544121E-02
SIG-BA	.1118562E-03	SIG-AA	.3494703E-03	SIG-YE	.1544121E-02	SIG-PE	.1118562E-03
SIG-RE	.3494703E-03	SIG-U	.1654324E-02	SIG-V	.2074907E-02	SIG-W	.1130951E-02
MACH A	.2716689E+00	MACH R	.2716689E+00	PINF	.9460575E+05	TEMP	.2920691E+03
RHO	.1128416E+01	Q A	.4885987E+04	Q R	.4885987E+04	PSTAG	.9958420E+05
P	.2395428E-01	Q	.7160157E-01	R	-.8014574E-01	X ACCEL	-.2530972E+00
Y ACCEL	-.1046199E+00	Z ACCEL	-.1000762E+02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.8232810E+00
QDOT	-.2694072E+00	RDOT	.2930071E+00				

TIME	.2315000E+04	VEL A	.8523411E+02	GAM A	.8188161E-01	HDG A	-.1157071E+03
ALTDE	.6410523E+03	LATD	.3495633E+02	LONG	.2421548E+03	SIGMAA	.1722831E-02
BETA A	-.1724623E+00	ALPHAA	.3997936E+01	YAW E	-.1155345E+03	PTCH E	.4079812E+01
ROLL E	.1974290E-02	U	-.3697203E+02	V	.3048535E+03	W	-.1218083E+00
VEL R	.8523411E+02	GAM R	.8188161E-01	HDG R	-.1157071E+03	SIGMAR	.1722832E-02
BETA R	-.1724613E+00	ALPHAR	.3997936E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1811933E-02	SIG-GA	.5854127E-03	SIG-HA	.9224684E-03
SIG-H	.1202644E+00	SIG-LA	.3304603E-05	SIG-LO	.7587641E-05	SIG-SA	.1550988E-02
SIG-BA	.1149684E-03	SIG-AA	.3942623E-03	SIG-YE	.1550988E-02	SIG-PE	.1149684E-03
SIG-RE	.3942623E-03	SIG-U	.1598591E-02	SIG-V	.2002840E-02	SIG-W	.1148123E-02
MACH A	.2488264E+00	MACH R	.2488264E+00	PINF	.9460662E+05	TEMP	.2920694E+03
RHO	.1128425E+01	Q A	.4098920E+04	Q R	.4098919E+04	PSTAG	.9877075E+05
P	-.1505869E-01	Q	-.1701349E+01	R	-.1994916E+00	X ACCEL	-.8759500E+00
Y ACCEL	.6742374E-01	Z ACCEL	-.1001059E+02	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.3383585E+00
QDOT	-.4633387E+00	RDOT	-.2081233E+00				

TIME	.2320000E+04	VEL A	.7328507E+02	GAM A	.1052741E+00	HDG A	-.1156978E+03
ALTDE	.6412124E+03	LATD	.3495478E+02	LONG	.2421509E+03	SIGMAA	.1217706E+00
BETA A	-.4274406E-01	ALPHAA	-.3957730E+01	YAW E	-.1156635E+03	PTCH E	-.3852538E+01
ROLL E	.1221249E+00	U	-.3177815E+02	V	.3156220E+03	W	-.1346524E+00
VEL R	.7328507E+02	GAM R	.1052741E+00	HDG R	-.1156978E+03	SIGMAR	.1217706E+00
BETA R	-.4274309E-01	ALPHAR	-.3957730E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1772973E-02	SIG-GA	.5956421E-03	SIG-HA	.8599631E-03
SIG-H	.1191528E+00	SIG-LA	.3346798E-05	SIG-LO	.7639575E-05	SIG-SA	.1550603E-02
SIG-BA	.1179296E-03	SIG-AA	.4850729E-03	SIG-YE	.1550603E-02	SIG-PE	.1179296E-03
SIG-RE	.4850729E-03	SIG-U	.1534465E-02	SIG-V	.1908462E-02	SIG-W	.1168407E-02
MACH A	.2139429E+00	MACH R	.2139429E+00	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.3030299E+04	Q R	.3030299E+04	PSTAG	.9767570E+05
P	.6314878E-01	Q	-.9910553E-01	R	.7263672E-01	X ACCEL	-.2445840E+01
Y ACCEL	-.5228162E-01	Z ACCEL	-.9690617E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.3201335E-02
QDOT	.1036010E+01	RDOT	.1364238E+00				

TIME	.2325000E+04	VEL A	.6466947E+02	GAM A	.6890024E-01	HDG A	-.1157975E+03
ALTDE	.6412397E+03	LATD	.3495342E+02	LONG	.2421475E+03	SIGMAA	.3312991E+00
BETA A	-.1729859E+00	ALPHAA	-.3834107E+01	YAW E	-.1156468E+03	PTCH E	-.3766143E+01
ROLL E	.3322229E+00	U	-.2814365E+02	V	.3234405E+03	W	-.7776735E-01
VEL R	.6466947E+02	GAM R	.6890024E-01	HDG R	-.1157975E+03	SIGMAR	.3312991E+00
BETA R	-.1729850E+00	ALPHAR	-.3834107E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1741814E-02	SIG-GA	.6075086E-03	SIG-HA	.8262680E-03
SIG-H	.1182187E+00	SIG-LA	.3384997E-05	SIG-LO	.7689967E-05	SIG-SA	.1557986E-02
SIG-BA	.1210279E-03	SIG-AA	.4931267E-03	SIG-YE	.1557986E-02	SIG-PE	.1210279E-03
SIG-RE	.4931267E-03	SIG-U	.1505631E-02	SIG-V	.1844100E-02	SIG-W	.1191838E-02
MACH A	.1887912E+00	MACH R	.1887912E+00	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.2359680E+04	Q R	.2359680E+04	PSTAG	.9699112E+05
P	-.3725299E-01	Q	.3935718E-02	R	.9704765E-01	X ACCEL	-.2339584E+01
Y ACCEL	.7377742E-01	Z ACCEL	-.9665342E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.2940363E-01
QDOT	-.2831936E-01	RDOT	.1573098E-01				

TIME	.2330000E+04	VEL A	.5715209E+02	GAM A	.2643288E-01	HDG A	-.1159780E+03
ALTDE	.6413127E+03	LATD	.3495224E+02	LONG	.2421445E+03	SIGMAA	.2956690E+00
BETA A	.1746487E+00	ALPHAA	-.3813806E+01	YAW E	-.1161723E+03	PTCH E	-.3786421E+01
ROLL E	.2962336E+00	U	-.2503409E+02	V	.3302928E+03	W	-.2636659E-01
VEL R	.5715209E+02	GAM R	.2643288E-01	HDG R	-.1159780E+03	SIGMAR	.2956690E+00
BETA R	.1746495E+00	ALPHAR	-.3813806E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1714901E-02	SIG-GA	.6207426E-03	SIG-HA	.8042808E-03
SIG-H	.1174908E+00	SIG-LA	.3420315E-05	SIG-LO	.7738684E-05	SIG-SA	.1565230E-02
SIG-BA	.1233073E-03	SIG-AA	.5023623E-03	SIG-YE	.1565230E-02	SIG-PE	.1233073E-03
SIG-RE	.5023623E-03	SIG-U	.1491154E-02	SIG-V	.1792292E-02	SIG-W	.1217913E-02
MACH A	.1668455E+00	MACH R	.1668455E+00	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.1842972E+04	Q R	.1842972E+04	PSTAG	.9646600E+05
P	-.6860459E-01	Q	.3339792E-01	R	-.8274653E-01	X ACCEL	-.1973664E+01
Y ACCEL	-.2288108E+00	Z ACCEL	-.9676703E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.1500761E+00
QDOT	-.3479426E-01	RDOT	.3155415E+00				

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***************************************************************************************
*    MFTBET1 USING LAIRS(USER,10/81      ),AMABETH,NE0105 DYNAM. DATA            PAGE   68   *
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TIME	.2335000E+04	VEL A	.4987634E+02	GAM A	.2642305E+00	HDG A	-.1157434E+03
ALTDE	.6415154E+03	LATD	.3495118E+02	LONG	.2421419E+03	SIGMAA	.3054922E+00
BETA A	.7571873E-01	ALPHAA	-.4058107E+01	YAW E	-.1158407E+03	PTCH E	-.3793416E+01
ROLL E	.3058095E+00	U	-.2166310E+02	V	.3367497E+03	W	-.2300135E+00
VEL R	.4987634E+02	GAM R	.2642305E+00	HDG R	-.1157434E+03	SIGMAR	.3054922E+00
BETA R	.7571929E-01	ALPHAR	-.4058107E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1687052E-02	SIG-GA	.6353092E-03	SIG-HA	.7887958E-03
SIG-H	.1169943E+00	SIG-LA	.3453279E-05	SIG-LO	.7785613E-05	SIG-SA	.1572566E-02
SIG-BA	.1262543E-03	SIG-AA	.5113911E-03	SIG-YE	.1572566E-02	SIG-PE	.1262543E-03
SIG-RE	.5113911E-03	SIG-U	.1485475E-02	SIG-V	.1743196E-02	SIG-W	.1246575E-02
MACH A	.1456052E+00	MACH R	.1456052E+00	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.1403601E+04	Q R	.1403601E+04	PSTAG	.9602108E+05
P	-.9201616E-01	Q	-.3398540E-01	R	-.9836578E-01	X ACCEL	-.2316722E+01
Y ACCEL	-.6167806E+00	Z ACCEL	-.9668784E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.3836832E+00
QDOT	.4919018E-01	RDOT	.1734722E+01				

TIME	.2340000E+04	VEL A	.4019356E+02	GAM A	.1215895E-01	HDG A	-.1159736E+03
ALTDE	.6413574E+03	LATD	.3495030E+02	LONG	.2421397E+03	SIGMAA	.1480806E+00
BETA A	-.5097111E+00	ALPHAA	-.3835929E+01	YAW E	-.1154738E+03	PTCH E	-.3825075E+01
ROLL E	.1485138E+00	U	-.1760304E+02	V	.3455455E+03	W	-.8529625E-02
VEL R	.4019355E+02	GAM R	.1215895E-01	HDG R	-.1159736E+03	SIGMAR	.1480806E+00
BETA R	-.5097109E+00	ALPHAR	-.3835929E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1665421E-02	SIG-GA	.6514056E-03	SIG-HA	.7771557E-03
SIG-H	.1167528E+00	SIG-LA	.3483424E-05	SIG-LO	.7830612E-05	SIG-SA	.1579919E-02
SIG-BA	.1285182E-03	SIG-AA	.5207080E-03	SIG-YE	.1579919E-02	SIG-PE	.1285182E-03
SIG-RE	.5207080E-03	SIG-U	.1495286E-02	SIG-V	.1692879E-02	SIG-W	.1278208E-02
MACH A	.1173380E+00	MACH R	.1173380E+00	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.9115224E+03	Q R	.9115223E+03	PSTAG	.9552452E+05
P	.1711171E-01	Q	-.4458319E-01	R	.3909353E+00	X ACCEL	-.2852448E+01
Y ACCEL	-.5331241E-01	Z ACCEL	-.9649282E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.2101551E-01
QDOT	-.3456730E-01	RDOT	.5256717E+00				

TIME	.2345000E+04	VEL A	.3065353E+02	GAM A	-.2166564E-01	HDG A	-.1151505E+03
ALTDE	.6413494E+03	LATD	.3494961E+02	LONG	.2421379E+03	SIGMAA	.9808672E-01
BETA A	-.3991690E+00	ALPHAA	-.3819550E+01	YAW E	-.1147579E+03	PTCH E	-.3841893E+01
ROLL E	.9815397E-01	U	-.1302768E+02	V	.3539351E+03	W	.1159122E-01
VEL R	.3065353E+02	GAM R	-.2166564E-01	HDG R	-.1151505E+03	SIGMAR	.9808672E-01
BETA R	-.3991693E+00	ALPHAR	-.3819550E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1643065E-02	SIG-GA	.6687450E-03	SIG-HA	.7765445E-03
SIG-H	.1167930E+00	SIG-LA	.3510376E-05	SIG-LO	.7873515E-05	SIG-SA	.1587249E-02
SIG-BA	.1313363E-03	SIG-AA	.5298999E-03	SIG-YE	.1587249E-02	SIG-PE	.1313363E-03
SIG-RE	.5298999E-03	SIG-U	.1517994E-02	SIG-V	.1648851E-02	SIG-W	.1312247E-02
MACH A	.8948759E-01	MACH R	.8948758E-01	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.5301704E+03	Q R	.5301703E+03	PSTAG	.9514096E+05
P	-.4079237E-01	Q	-.7451015E-03	R	-.8414549E-01	X ACCEL	-.2425645E+01
Y ACCEL	.3662252E-01	Z ACCEL	-.9620595E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.7161146E-01
QDOT	-.5038297E-01	RDOT	-.2885155E+00				

TIME	.2350000E+04	VEL A	.2275187E+02	GAM A	.7176979E-02	HDG A	-.1154085E+03
ALTDE	.6412121E+03	LATD	.3494910E+02	LONG	.2421366E+03	SIGMAA	.1128943E+00
BETA A	-.2853488E+00	ALPHAA	-.3855943E+01	YAW E	-.1151308E+03	PTCH E	-.3849321E+01
ROLL E	.1131840E+00	U	-.9762118E+01	V	.3611338E+03	W	-.2849942E-02
VEL R	.2275186E+02	GAM R	.7176980E-02	HDG R	-.1154085E+03	SIGMAR	.1128943E+00
BETA R	-.2853497E+00	ALPHAR	-.3855943E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1632872E-02	SIG-GA	.6869257E-03	SIG-HA	.7841380E-03
SIG-H	.1171440E+00	SIG-LA	.3534859E-05	SIG-LO	.7914301E-05	SIG-SA	.1594598E-02
SIG-BA	.1343441E-03	SIG-AA	.5389610E-03	SIG-YE	.1594598E-02	SIG-PE	.1343441E-03
SIG-RE	.5389610E-03	SIG-U	.1545633E-02	SIG-V	.1626551E-02	SIG-W	.1347908E-02
MACH A	.6642007E-01	MACH R	.6642006E-01	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.2920711E+03	Q R	.2920710E+03	PSTAG	.9490204E+05
P	.3401381E-01	Q	.4037062E-01	R	-.1451226E+00	X ACCEL	-.2192080E+01
Y ACCEL	-.9301982E-01	Z ACCEL	-.9692370E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.2101278E-01
QDOT	-.1905968E-01	RDOT	.4907896E+00				

TIME	.2355000E+04	VEL A	.1552661E+02	GAM A	.3249402E-01	HDG A	-.1155282E+03
ALTDE	.6411090E+03	LATD	.3494873E+02	LONG	.2421356E+03	SIGMAA	.9024844E-01
BETA A	-.3150419E+00	ALPHAA	-.3880413E+01	YAW E	-.1152192E+03	PTCH E	-.3848411E+01
ROLL E	.9063009E-01	U	-.6691260E+01	V	.3676758E+03	W	-.8805565E-02
VEL R	.1552660E+02	GAM R	.3249402E-01	HDG R	-.1155282E+03	SIGMAR	.9024844E-01
BETA R	-.3150441E+00	ALPHAR	-.3880413E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1627689E-02	SIG-GA	.3487663E-02	SIG-HA	.3933503E-02
SIG-H	.1178342E+00	SIG-LA	.3557467E-05	SIG-LO	.7952942E-05	SIG-SA	.1552873E-02
SIG-BA	.1357957E-03	SIG-AA	.4083455E-03	SIG-YE	.1552873E-02	SIG-PE	.1357957E-03
SIG-RE	.4088455E-03	SIG-U	.1575337E-02	SIG-V	.1615005E-02	SIG-W	.1384932E-02
MACH A	.4532719E-01	MACH R	.4532719E-01	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.1360215E+03	Q R	.1360215E+03	PSTAG	.9474569E+05
P	.2020266E-01	Q	.5495479E-02	R	.1722840E+00	X ACCEL	-.2604363E+01
Y ACCEL	.3607580E-01	Z ACCEL	-.9646833E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.1027707E+00
QDOT	-.1019367E+00	RDOT	-.9882545E-01				

TIME	.2360000E+04	VEL A	.7408851E+01	GAM A	.2083860E+00	HDG A	-.1154902E+03
ALTDE	.6412843E+03	LATD	.3494851E+02	LONG	.2421351E+03	SIGMAA	.8144746E-01
BETA A	-.2944777E+00	ALPHAA	-.4089830E+01	YAW E	-.1152016E+03	PTCH E	-.3881861E+01
ROLL E	.8270661E-01	U	-.3188423E+01	V	.3750000E+03	W	-.2694610E-01
VEL R	.7408848E+01	GAM R	.2083861E+00	HDG R	-.1154902E+03	SIGMAR	.8144744E-01
BETA R	-.2944844E+00	ALPHAR	-.4089830E+01	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1628569E-02	SIG-GA	.3586759E-02	SIG-HA	.4030329E-02
SIG-H	.1188888E+00	SIG-LA	.3578052E-05	SIG-LO	.7989368E-05	SIG-SA	.1559227E-02
SIG-BA	.1389234E-03	SIG-AA	.4170145E-03	SIG-YE	.1559227E-02	SIG-PE	.1389234E-03
SIG-RE	.4170145E-03	SIG-U	.1617609E-02	SIG-V	.1611521E-02	SIG-W	.1424284E-02
MACH A	.2162884E-01	MACH R	.2162883E-01	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.3097107E+02	Q R	.3097105E+02	PSTAG	.9464054E+05
P	.1983977E-04	Q	.1984517E-01	R	.3652706E+00	X ACCEL	-.2239659E+01
Y ACCEL	.3437316E-01	Z ACCEL	-.9633789E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.6496345E-01
QDOT	-.7090806E-01	RDOT	.2584002E+00				

TIME	.2365000E+04	VEL A	.2056217E+00	GAM A	-.1135438E+02	HDG A	.6342108E+02
ALTDE	.6412202E+03	LATD	.3494844E+02	LONG	.2421349E+03	SIGMAA	-.1797482E+03
BETA A	.1713357E+01	ALPHAA	.1648206E+03	YAW E	-.1148556E+03	PTCH E	-.3822580E+01
ROLL E	.9074703E-01	U	.9020073E-01	V	.3818682E+03	W	.4048215E-01
VEL R	.2056240E+00	GAM R	-.1135426E+02	HDG R	.6342140E+02	SIGMAR	-.1797483E+03
BETA R	.1713035E+01	ALPHAR	.1648208E+03	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1636719E-02	SIG-GA	.3689205E-02	SIG-HA	.4146269E-02
SIG-H	.1203340E+00	SIG-LA	.3596944E-05	SIG-LO	.8023573E-05	SIG-SA	.1565891E-02
SIG-BA	.1423637E-03	SIG-AA	.4242909E-03	SIG-YE	.1565891E-02	SIG-PE	.1423637E-03
SIG-RE	.4242909E-03	SIG-U	.1662587E-02	SIG-V	.1620150E-02	SIG-W	.1464967E-02
MACH A	.6002765E-03	MACH R	.6002831E-03	PINF	.9460955E+05	TEMP	.2920704E+03
RHO	.1128456E+01	Q A	.2385572E-01	Q R	.2385625E-01	PSTAG	.9460958E+05
P	-.6210446E-01	Q	.2385922E+00	R	-.1147329E-01	X ACCEL	-.9015909E+00
Y ACCEL	-.8591171E-02	Z ACCEL	-.9592399E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.7116460E-01
QDOT	.1759956E+00	RDOT	.6192946E-01				

TIME	.2370000E+04	VEL A	.2888075E-01	GAM A	-.4587346E+02	HDG A	.5556555E+02
ALTDE	.6409881E+03	LATD	.3494844E+02	LONG	.2421349E+03	SIGMAA	-.1731384E+03
BETA A	.6729493E+01	ALPHAA	.1299594E+03	YAW E	-.1148410E+03	PTCH E	-.3770488E+01
ROLL E	.8644516E-01	U	.1137038E-01	V	.3817045E+03	W	.2073071E-01
VEL R	.2888223E-01	GAM R	-.4587044E+02	HDG R	.5556970E+02	SIGMAR	-.1731418E+03
BETA R	.6726982E+01	ALPHAR	.1299628E+03	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1650935E-02	SIG-GA	.3778016E-02	SIG-HA	.4145691E-02
SIG-H	.1221943E+00	SIG-LA	.3616103E-05	SIG-LO	.8055736E-05	SIG-SA	.1572569E-02
SIG-BA	.1456706E-03	SIG-AA	.4316412E-03	SIG-YE	.1572569E-02	SIG-PE	.1456706E-03
SIG-RE	.4316412E-03	SIG-U	.1654850E-02	SIG-V	.1642238E-02	SIG-W	.1500234E-02
MACH A	.8431220E-04	MACH R	.8431652E-04	PINF	.9461075E+05	TEMP	.2920709E+03
RHO	.1128469E+01	Q A	.4706263E-03	Q R	.4706746E-03	PSTAG	.9461075E+05
P	-.1428664E-01	Q	.1063401E-01	R	.6517291E-02	X ACCEL	-.6195845E+00
Y ACCEL	.3104296E-01	Z ACCEL	-.9777910E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.2976424E-02
QDOT	-.2740729E-02	RDOT	.4753092E-02				

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*****************************************************************************************
*     METBET1 USING LAIRS(USER,10/81       ).AMABETH.NE0105 DYNAM. DATA                PAGE   72   *
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TIME	.2375000E+04	VEL A	.1793106E-01	GAM A	-.7660521E+02	HDG A	.9828185E+01
ALTDE	.6409247E+03	LATD	.3494844E+02	LONG	.2421349E+03	SIGMAA	-.1254297E+03
BETA A	.1106384E+02	ALPHAA	.9395223E+02	YAW E	-.1148528E+03	PTCH E	-.3765560E+01
ROLL E	.8200729E-01	U	.4092938E-02	V	.3816896E+03	W	.1744329E-01
VEL R	.1793117E-01	GAM R	-.7660384E+02	HDG R	.9863217E+01	SIGMAR	-.1254652E+03
BETA R	.1106025E+02	ALPHAR	.9395978E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1671965E-02	SIG-GA	.3869098E-02	SIG-HA	.4197833E-02
SIG-H	.1244865E+00	SIG-LA	.3637014E-05	SIG-LO	.8086003E-05	SIG-SA	.1579091E-02
SIG-BA	.1490478E-03	SIG-AA	.4394585E-03	SIG-YE	.1579091E-02	SIG-PE	.1490478E-03
SIG-RE	.4394585E-03	SIG-U	.1670797E-02	SIG-V	.1668164E-02	SIG-W	.1536403E-02
MACH A	.5234644E-04	MACH R	.5234674E-04	PINF	.9461428E+05	TEMP	.2920721E+03
RHO	.1128506E+01	Q A	.1814203E-03	Q R	.1814224E-03	PSTAG	.9461428E+05
P	-.3077485E-02	Q	.2940144E-02	R	-.1194316E-01	X ACCEL	-.6628691E+00
Y ACCEL	.8710870E-02	Z ACCEL	-.9778117E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	.4388601E-02
QDOT	-.1004019E-01	RDOT	.1516827E-01				

TIME	.2380000E+04	VEL A	.2226873E-01	GAM A	-.7293092E+02	HDG A	-.1041145E+03
ALTDE	.6408580E+03	LATD	.3494844E+02	LONG	.2421349E+03	SIGMAA	-.1024119E+02
BETA A	.3212092E+01	ALPHAA	.6944835E+02	YAW E	-.1148476E+03	PTCH E	-.3762625E+01
ROLL E	.8381608E-01	U	-.1593972E-02	V	.3816816E+03	W	.2128783E-01
VEL R	.2226800E-01	GAM R	-.7293707E+02	HDG R	-.1041200E+03	SIGMAR	-.1023624E+02
BETA R	.3209407E+01	ALPHAR	.6945412E+02	U-WIND	0.	V-WIND	0.
W-WIND	0.	SIG-VA	.1700290E-02	SIG-GA	.3961923E-02	SIG-HA	.4303097E-02
SIG-H	.1272199E+00	SIG-LA	.3659726E-05	SIG-LO	.8114393E-05	SIG-SA	.1585609E-02
SIG-BA	.1525473E-03	SIG-AA	.4472996E-03	SIG-YE	.1585609E-02	SIG-PE	.1525473E-03
SIG-RE	.4472996E-03	SIG-U	.1711048E-02	SIG-V	.1698125E-02	SIG-W	.1573263E-02
MACH A	.6500947E-04	MACH R	.6500732E-04	PINF	.9461428E+05	TEMP	.2920721E+03
RHO	.1128506E+01	Q A	.2798110E-03	Q R	.2797925E-03	PSTAG	.9461428E+05
P	.1224001E-01	Q	.6851237E-02	R	-.5394080E-02	X ACCEL	-.6567147E+00
Y ACCEL	.1172053E-01	Z ACCEL	-.9781036E+01	CXB	0.	CYB	0.
CZB	0.	CL	0.	CD	0.	L/D	0.
CL-ROLL	0.	CM-PITCH	0.	CN-YAW	0.	PDOT	-.1392753E-01
QDOT	-.1153770E-01	RDOT	.3944476E-02				

2385 DATA RECORDS READ FROM LARC "EXTENDED" BET FILE

1. Report No.	2. Government Accession No.	3. Recipient's Catalog No.
NASA CR-3561		

4. Title and Subtitle

Reconstruction of the 1st Space Shuttle (STS-1) Entry Trajectory

5. Report Date

June 1982

6. Performing Organization Code

7. Author(s)

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8. Performing Organization Report No.

AMA 82-6

9. Performing Organization Name and Address

Analytical Mechanics Associates, Inc.
17 Research Road
Hampton, Virginia 23666

10. Work Unit No.

11. Contract or Grant No.

NAS1-16087

12. Sponsoring Agency Name and Address

National Aeronautics and Space Administration
Washington, D. C. 20546

13. Type of Report and Period Covered

Contractor Report

14. Sponsoring Agency Code

15. Supplementary Notes

Langley Technical Monitor: Harold R. Compton

16. Abstract

A discussion of the generation of the Best Estimate Trajectory (BET) of the first NASA Space Shuttle Orbiter entry flight (STS-1) as reported by Compton, et al., in Reference 1 is presented. This work was sponsored by NASA LaRC under Contract No. NAS1-16087 to the Analytical Mechanics Associates, Inc. The BET defines a time history of the state, attitude, and (combined with the best available atmosphere as defined by the Langley Atmosphere Information Retrieval System (LAIRS)) atmospheric relative parameters throughout the Shuttle entry from an altitude of approximately 183 km to rollout on Runway 23 on the Roger's dry lake bed at Edwards Air Force Base. The inertial parameters were estimated utilizing a weighted least squares batch filter algorithm. Spacecraft angular rate and acceleration data derived from the Inertial Measurement Unit (IMU) were utilized to predict the state and attitude which was constrained in a weighted least squares process to fit external tracking data consisting of ground based S-band and C-band data. In addition, refined spacecraft altitude and velocity during and post rollout were obtained by processing artificial altimeter and Doppler data.

Appendix A is presented to provide for a general discussion of the BET generation process. This includes both software and data interface discussions as well as a definition of the variables and coordinate systems utilized. STS-1 mission peculiar inputs are summarized in Appendix B. Though the report contains tables and figures which show the more relevant results, it is virtually impossible to present all the information in this form. Thus, Appendix C is included which provides a listing of the contents of the actual BET.

17. Key Words (Suggested by Author(s))	18. Distribution Statement
Shuttle, STS-1, entry trajectory reconstruction, atmosphere, winds, flight derived aerodynamics, C-band and S-band tracking, postflight data processing, Inertial Measurement Unit	Unclassified - Unlimited Subject Category 13

19. Security Classif. (of this report)	20. Security Classif. (of this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	170	A08

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NASA-Langley, 1982