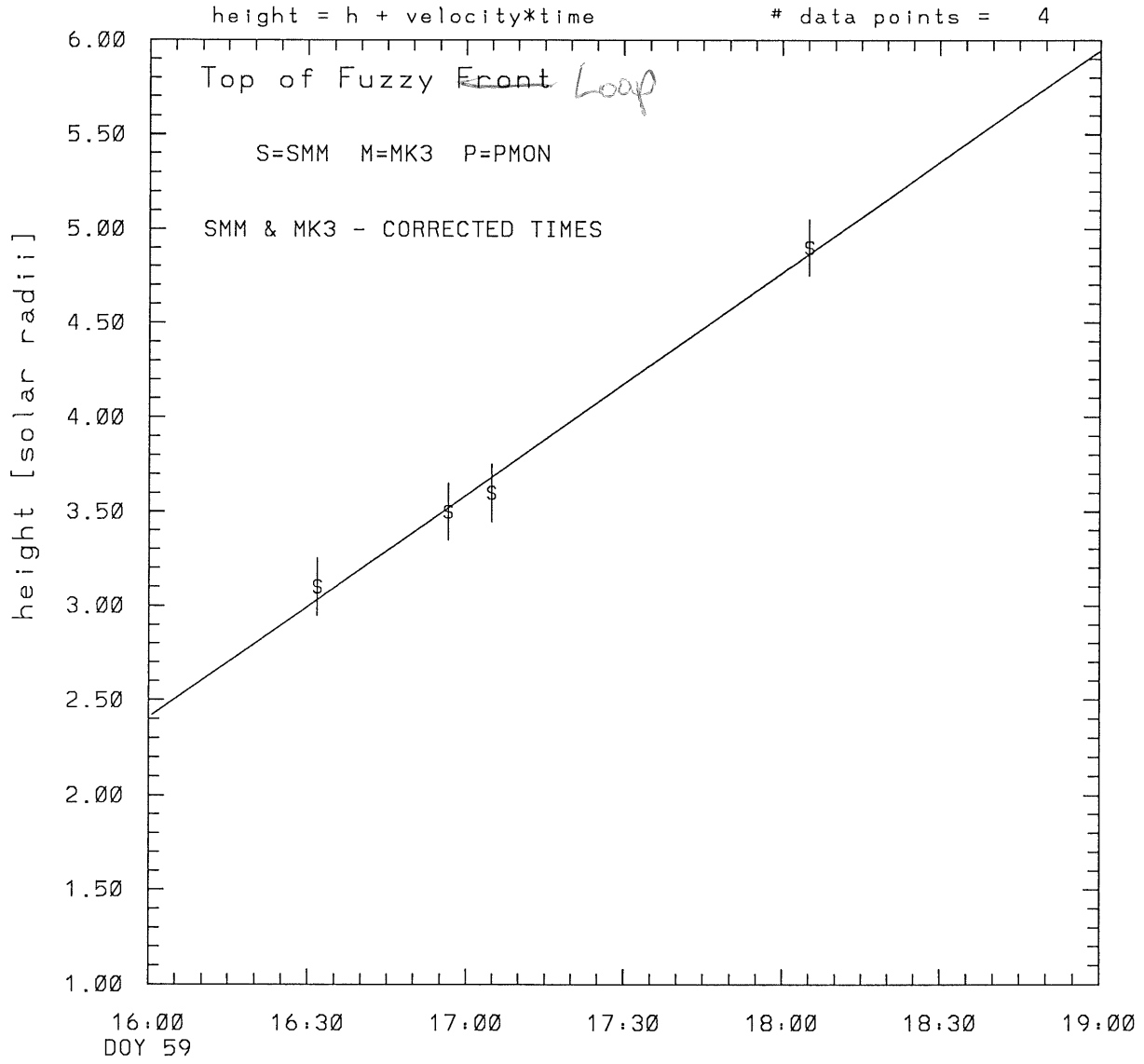


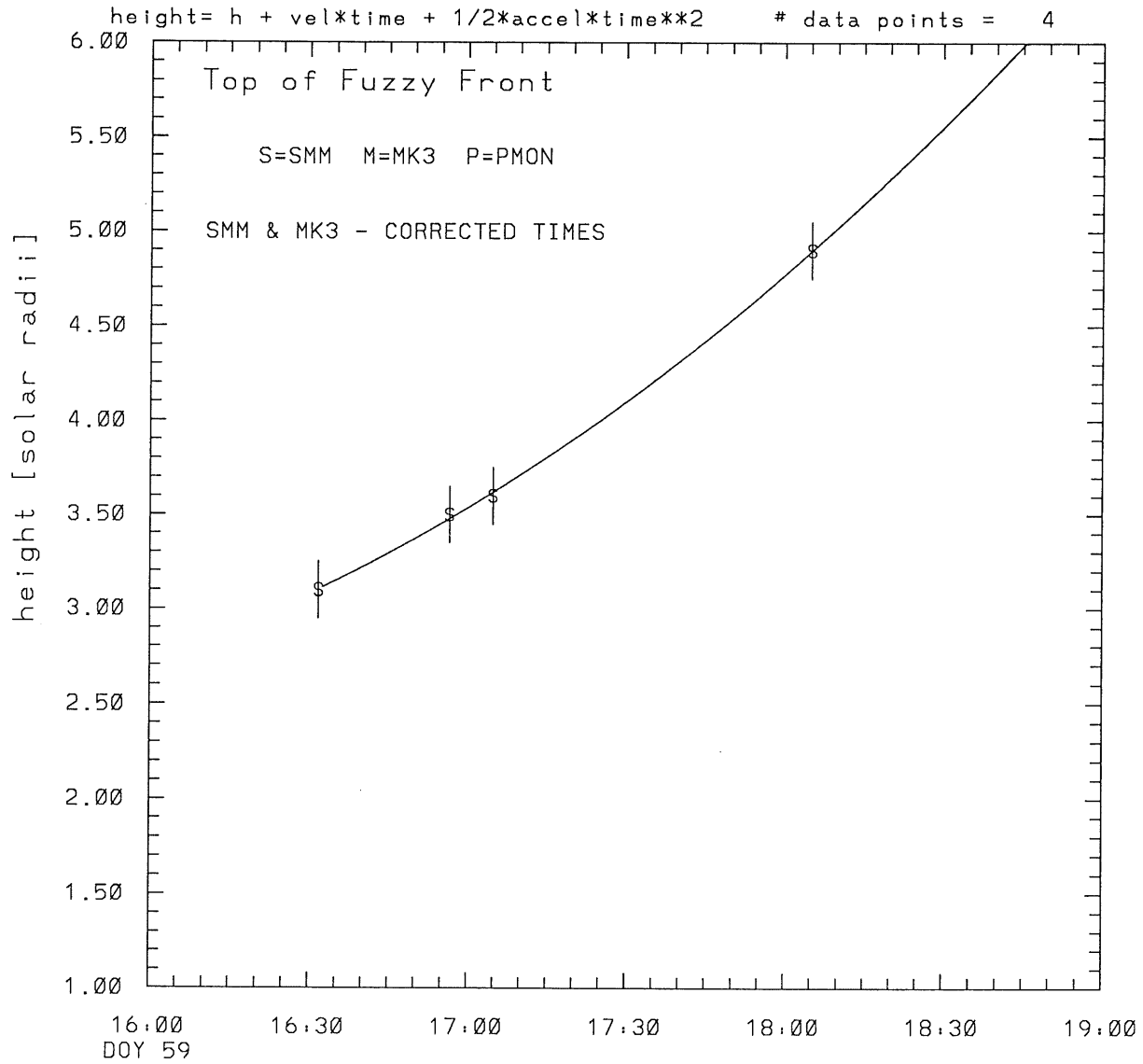
SMM C/P 1989 DOY 59 150 +/- 0 degrees



16:00  
DOY 59

tstart=DOY 59 14:50 +/- 1.7 [min.]  
radial velocity= 228. +/- 11. [km/sec]

SMM C/P 1989 DOY 59 150 +/- 0 degrees

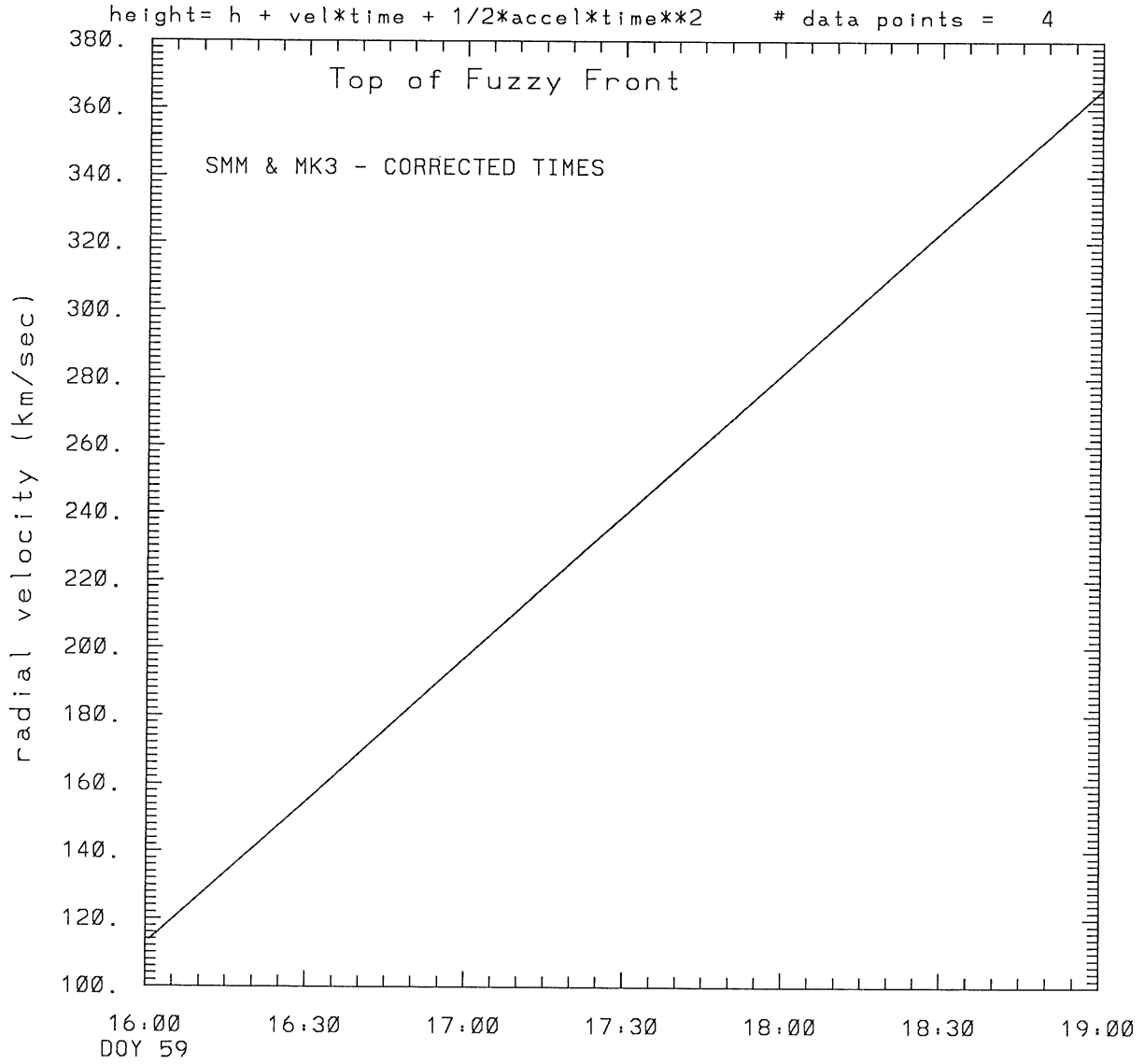


tstart=DOY 59 14:40 from derivative=0

Event begins at 2.34 Solar Radii

radial acceleration =  $0.0234 \pm 0.0045$  [km/sec\*\*2]

SMM C/P 1989 DOY 59 150 +/- 0 degrees

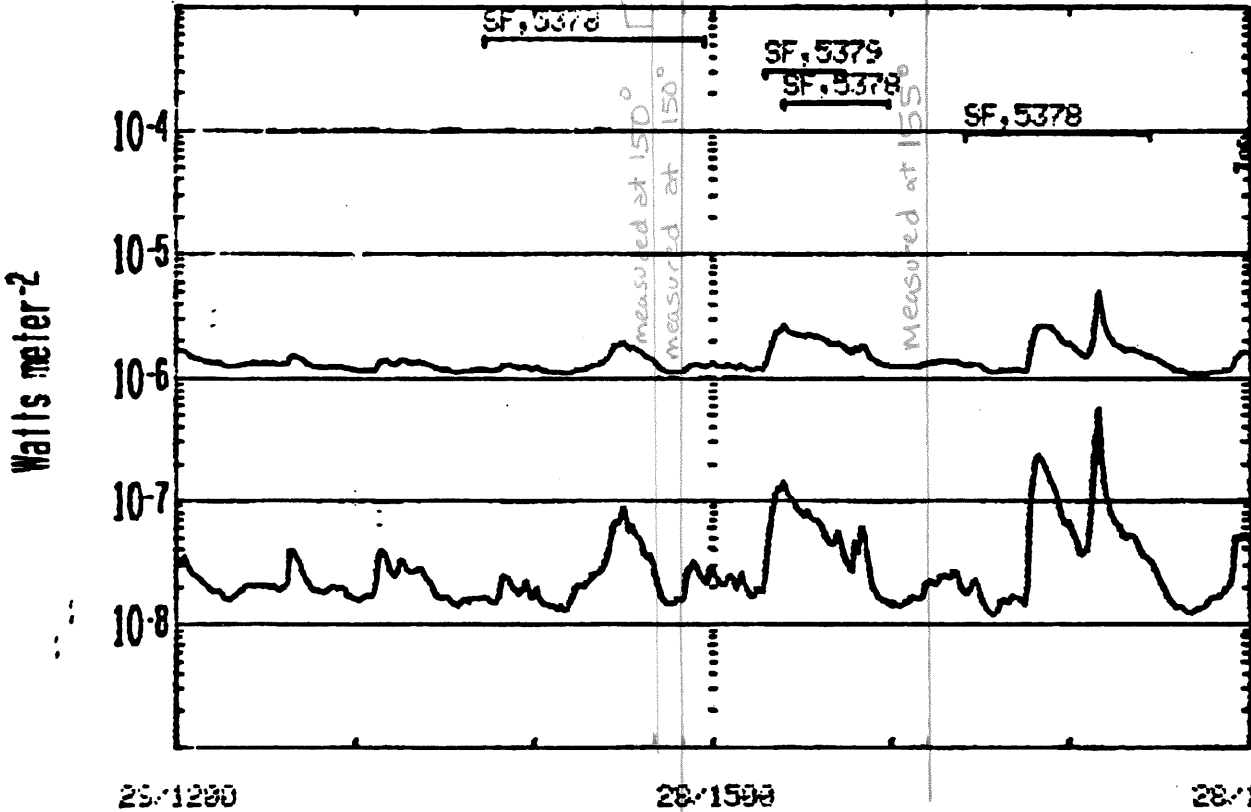


tstart=DOY 59 14:40 from derivative=0  
Event begins at 2.34 Solar Radii  
radial acceleration=0.234E-01 km/sec\*\*2

1989 Day 059

MIX AND OPTICAL DATA TOGETHER

BEGIN: 28 FEB 89



GOES 7 0.5-4.0A GOES 7 1.0-8.0A  
OPTICAL FLARES

GOES-7 1 MIN DATA; OPTICAL FLARE DUR. IMP. REGION

SAA's NIGHT  
RUN: 2147UT  
3 MAR 89

\*\*\*\*\*  
This is a 1 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	day	time	radii	error in radius	angle	error in angle	datatype
1989	59	16:31:48	3.10	+/- 0.15	150.0	+/- 0.5	SMM
1989	59	16:56:36	3.50	+/- 0.15	150.0	+/- 0.5	SMM
1989	59	17: 4:51	3.60	+/- 0.15	150.0	+/- 0.5	SMM
1989	59	18: 5: 9	4.90	+/- 0.15	150.0	+/- 0.5	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Fuzzy Front Loop  
\*\*\*\*\*

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.717E+02 +/- 0.166E+01$  [minutes]  
In more convenient units:  
Event began at DOY 59 14:50 +/- 0.166E+01 [minutes]

Origin defined at DOY 59 16: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 228. +/- 11. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.241E+01 +/- 0.738E-01$  [solar radii]  
 $c(2) = 0.196E-01 +/- 0.951E-03$  [radii/min]  
 $c(2) = 0.228E+03 +/- 0.110E+02$  [km/sec]  
 $c(3) = 0.000E+00 +/- 0.000E+00$  [radii/min\*\*2]  
 $c(3) = 0.000E+00 +/- 0.000E+00$  [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

error in  $c(1) = 0.90349E-01$  [radii] see Bevington pg. 114  
error in  $c(2) = 0.11644E-02$  [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.0000E+00 +/- 0.0000E+00 [radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 150. +/- 0. [degrees]  
a(2) = 0.000E+00 +/- 0.000E+00 [degrees/min]  
a(2) = 0.000E+00 +/- 0.000E+00 [rad/sec]  
a(3) = 0.000E+00 +/- 0.000E+00 [degrees/min\*\*2]  
a(3) = 0.000E+00 +/- 0.000E+00 [rad/sec\*\*2]

THE TANGENTIAL AND TOTAL VELOCITIES AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 16:31 = 0. km/sec

The TOTAL velocity at 16:31 = 228. km/sec

The TANGENTIAL velocity at 16:56 = 0. km/sec

The TOTAL velocity at 16:56 = 228. km/sec

The TANGENTIAL velocity at 17: 4 = 0. km/sec

The TOTAL velocity at 17: 4 = 228. km/sec

The TANGENTIAL velocity at 18: 5 = 0. km/sec

The TOTAL velocity at 18: 5 = 228. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.78

Standard Deviation in start time measurement = 0.343E+02

Error in time = 0.57528E+01 using best fit method

See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.425E-02

Reduced Chi Squared = 0.150E-01

Chi Squared = 0.300E-01

The probability for exceeding chi square = 0.996E+00

The correlation coefficient = 0.997E+00

The probability that no LINEAR correlation exists between the variables = 0.3497E-02

SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

\*\*\*\*\*  
This is a 2 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	day	time	radii	radius	error in	angle	error in	datatype
1989	59	16:31:48	3.10	+/- 0.15	150.0	+/- 0.5	SMM	
1989	59	16:56:36	3.50	+/- 0.15	150.0	+/- 0.5	SMM	
1989	59	17: 4:51	3.60	+/- 0.15	150.0	+/- 0.5	SMM	
1989	59	18: 5: 9	4.90	+/- 0.15	150.0	+/- 0.5	SMM	

\*\*\*\*\*  
Structure being measured:  
Top of Fuzzy Front  
\*\*\*\*\*

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

tstart=DOY 59 14:40 from derivative = 0  
Event begins at 2.34 Solar Radii  
Origin defined at DOY 59 16: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.234E-01 +/- 0.445E-02 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.273E+01 +/- 0.661E-01 [solar radii]  
c(2) = 0.972E-02 +/- 0.191E-02 [radii/min]  
c(2) = 0.113E+03 +/- 0.221E+02 [km/sec]  
c(3) = 0.606E-04 +/- 0.115E-04 [radii/min\*\*2]  
c(3) = 0.234E-01 +/- 0.445E-02 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.93486E-01 [radii] Bevington pg 154 (8-30)  
Exact error in c(1) = 0.32475E-01 [radii] Bevington pg 154 (8-28)  
Approximate error in c(2) = 0.26981E-02 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.12320E-02 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.16278E-04 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.77938E-05 [radii/min\*\*] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= 0.0000E+00 +/- 0.0000E+00[radians/sec\*\*2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 150. +/- 0. [degrees]  
a(2) = 0.000E+00 +/- 0.000E+00 [degrees/min]  
a(2) = 0.000E+00 +/- 0.000E+00 [rad/sec]  
a(3) = 0.000E+00 +/- 0.000E+00 [degrees/min\*\*2]  
a(3) = 0.000E+00 +/- 0.000E+00 [rad/sec\*\*2]

THE TANGENTIAL AND TOTAL VELOCITIES AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 16:31 = 0. km/sec

The TOTAL velocity at 16:31 = 157. km/sec

The TANGENTIAL velocity at 16:56 = 0. km/sec

The TOTAL velocity at 16:56 = 192. km/sec

The TANGENTIAL velocity at 17: 4 = 0. km/sec

The TOTAL velocity at 17: 4 = 204. km/sec

The TANGENTIAL velocity at 18: 5 = 0. km/sec

The TOTAL velocity at 18: 5 = 289. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.78

Standard Deviation in start time measurement = 0.343E+02

Value of reduced Chi Squared returned from nllst2 = 0.429E-03

Reduced Chi Squared = 0.206E-02

Chi Squared = 0.206E-02

The probability for exceeding chi square = 0.983E+00

For a second order fit 3 correlation coefficients are given:

(Using equation of motion:  $r = a + bt + at^{**2}$ )

The correlation between the data and the term linear in time = 0.9965E+00

The correlation between the data and the time\*\*2 term = 0.9967E+00

The correlation between the data and the complete equation of motion = 0.9995E+00

SEE BEVINGTON "Data Reduction and Error Analysis" [1969]