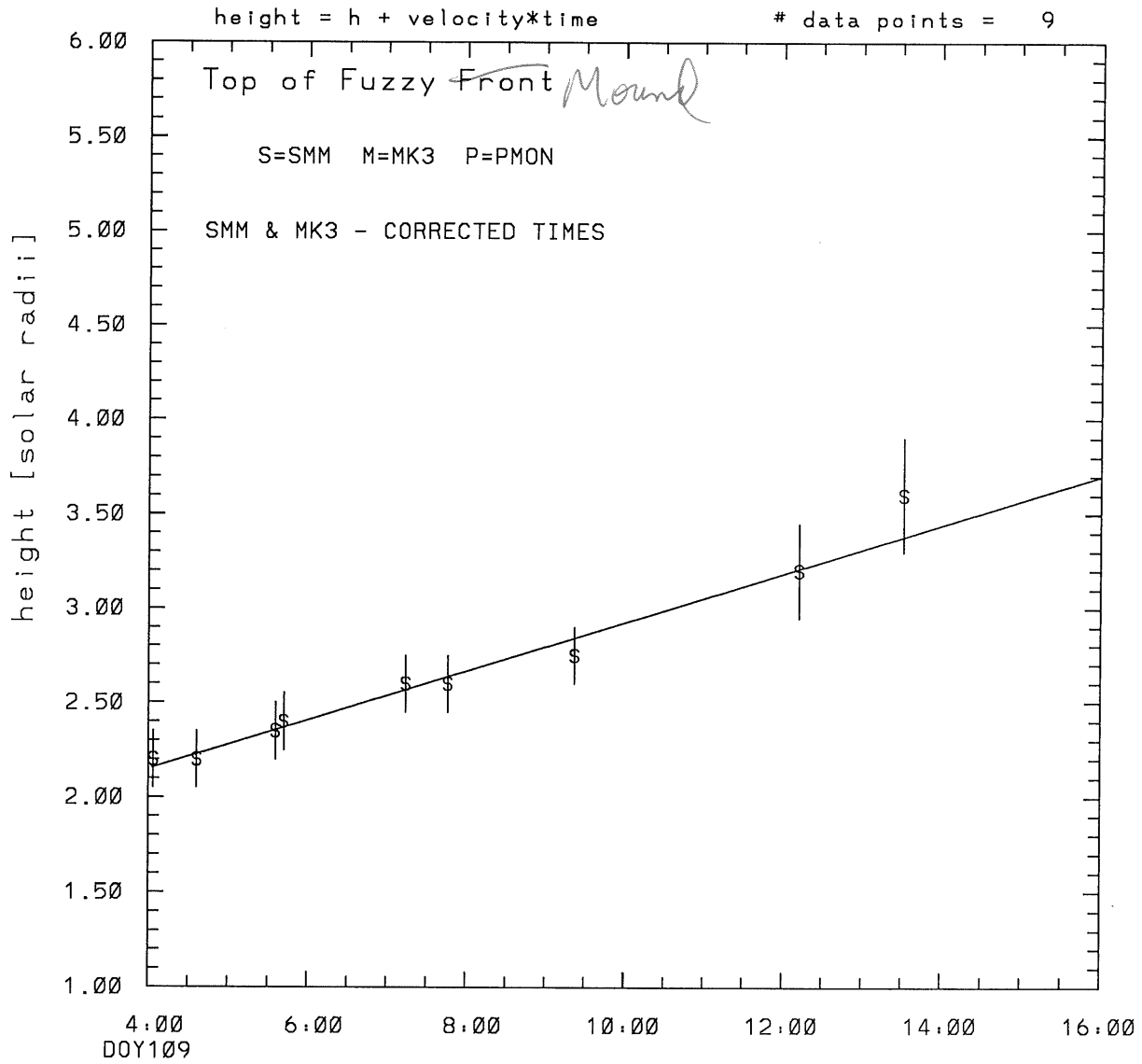
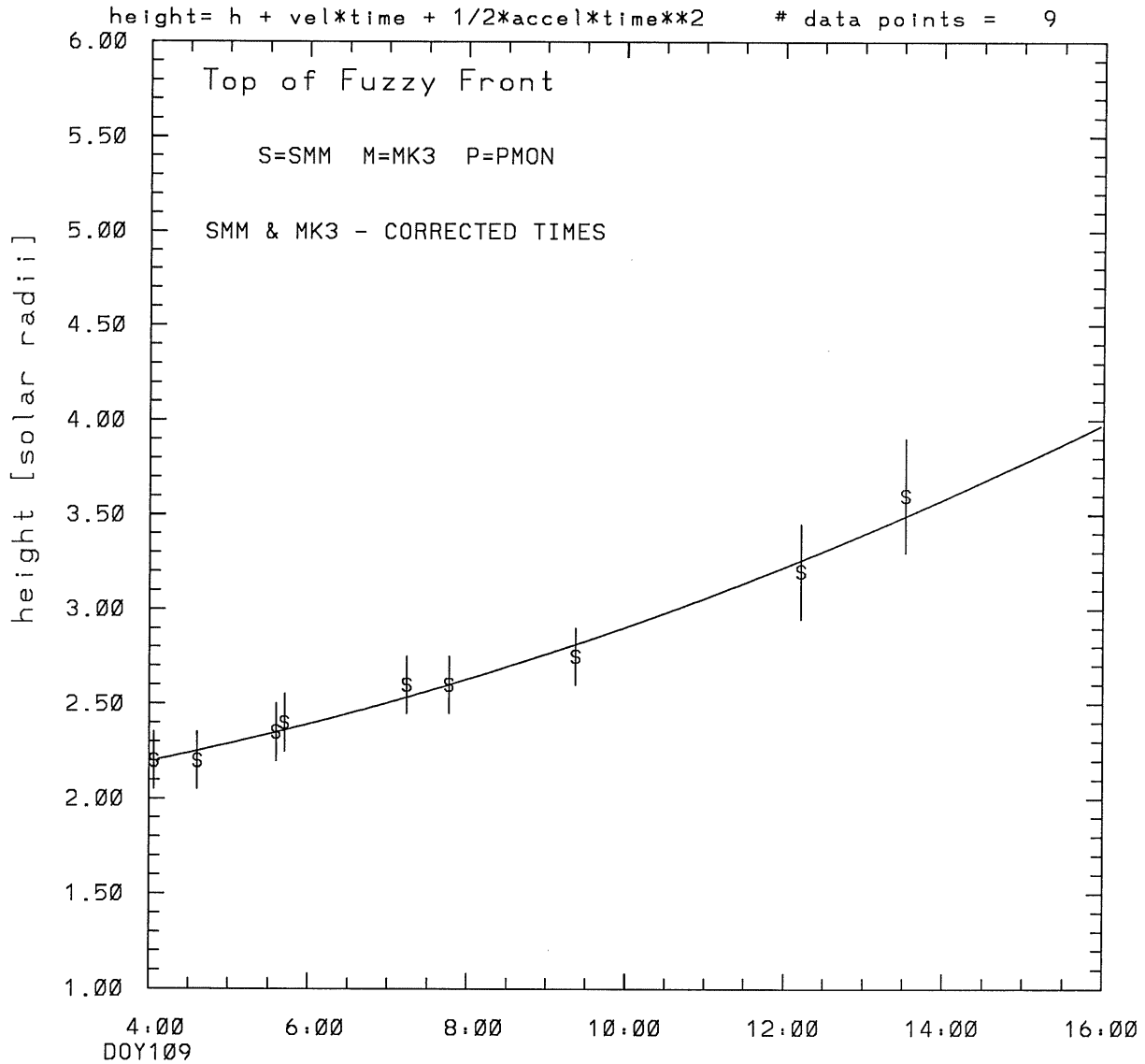


SMM C/P 1980 DOY109 105 +/- 0 degrees



tstart=DOY108 19: 7 +/- 2.5 [min.]  
radial velocity= 25. +/- 2. [km/sec]

SMM C/P 1980 DOY109 105 +/- 0 degrees

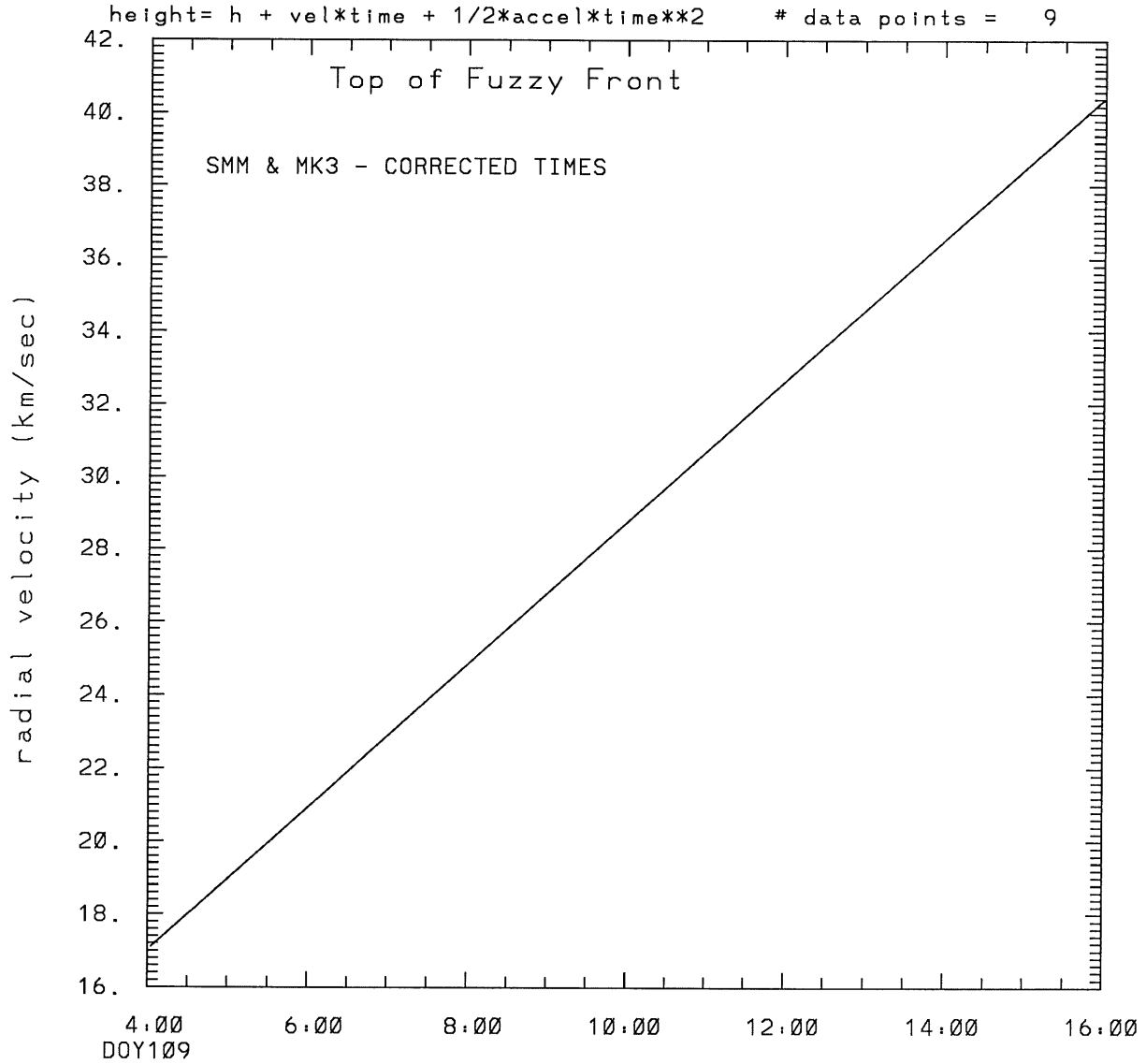


tstart=DOY108 19:17 from derivative=0

Event begins at 1.81 Solar Radii

radial acceleration =  $0.0005 \pm 0.0003$  [km/sec\*\*2]

SMM C/P 1980 DOY109 105 +/- 0 degrees



tstart=DOY108 19:17 from derivative=0  
Event begins at 1.81 Solar Radii  
radial acceleration=0.542E-03 km/sec\*\*2

\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

| year | doy | time     | error in radii | error in radius | error in angle | error in angle | datatype |
|------|-----|----------|----------------|-----------------|----------------|----------------|----------|
| 1980 | 109 | 4: 3:41  | 2.20 +/- 0.15  | 2.20 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 4:36:22  | 2.20 +/- 0.15  | 2.20 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 5:35:33  | 2.35 +/- 0.15  | 2.35 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 5:41:56  | 2.40 +/- 0.15  | 2.40 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 7:14:22  | 2.60 +/- 0.15  | 2.60 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 7:46:22  | 2.60 +/- 0.15  | 2.60 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 9:22:22  | 2.75 +/- 0.15  | 2.75 +/- 0.15   | 105.0 +/- 0.5  | 105.0 +/- 0.5  | SMM      |
| 1980 | 109 | 12:12:39 | 3.20 +/- 0.25  | 3.20 +/- 0.25   | 105.0 +/- 1.0  | 105.0 +/- 1.0  | SMM      |
| 1980 | 109 | 13:31:39 | 3.60 +/- 0.30  | 3.60 +/- 0.30   | 105.0 +/- 1.0  | 105.0 +/- 1.0  | SMM      |

\*\*\*\*\*

Structure being measured:

Top of Fuzzy Front

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.533E+03 +/- 0.253E+01$  [minutes]

In more convenient units:

Event began at DOY 108 19: 7 +/- 0.253E+01 [minutes]

Origin defined at DOY109 4: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 25. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.215E+01 +/- 0.324E-01$  [solar radii]  
 $c(2) = 0.215E-02 +/- 0.145E-03$  [radii/min]  
 $c(2) = 0.250E+02 +/- 0.168E+01$  [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  $c(1) = 0.49647E-01$  [radii] see Bevington pg. 114  
error in  $c(2) = 0.16829E-03$  [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) = 105. +/- 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 4: 3 = 0.000E+00 km/sec

The TOTAL velocity at 4: 3 = 25. km/sec

The TANGENTIAL velocity at 4:36 = 0.000E+00 km/sec

The TOTAL velocity at 4:36 = 25. km/sec

The TANGENTIAL velocity at 5:35 = 0.000E+00 km/sec

The TOTAL velocity at 5:35 = 25. km/sec

The TANGENTIAL velocity at 5:41 = 0.000E+00 km/sec

The TOTAL velocity at 5:41 = 25. km/sec

The TANGENTIAL velocity at 7:14 = 0.000E+00 km/sec

The TOTAL velocity at 7:14 = 25. km/sec

The TANGENTIAL velocity at 7:46 = 0.000E+00 km/sec

The TOTAL velocity at 7:46 = 25. km/sec

The TANGENTIAL velocity at 9:22 = 0.000E+00 km/sec

The TOTAL velocity at 9:22 = 25. km/sec

The TANGENTIAL velocity at 12:12 = 0.000E+00 km/sec

The TOTAL velocity at 12:12 = 25. km/sec

The TANGENTIAL velocity at 13:31 = 0.000E+00 km/sec

The TOTAL velocity at 13:31 = 25. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.47

Standard Deviation in start time measurement = 0.188E+03

Error in time = 0.11665E+03 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.396E-02

Reduced Chi Squared = 0.739E-01

Chi Squared = 0.517E+00

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.986E+00

The probability that no LINEAR correlation exists between the variables = 0.1163E-05

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

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

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

| year | doy | time     | radii | radius   | error in<br>angle | error in<br>angle | datatype |
|------|-----|----------|-------|----------|-------------------|-------------------|----------|
| 1980 | 109 | 4: 3:41  | 2.20  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 4:36:22  | 2.20  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 5:35:33  | 2.35  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 5:41:56  | 2.40  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 7:14:22  | 2.60  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 7:46:22  | 2.60  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 9:22:22  | 2.75  | +/- 0.15 | 105.0             | +/- 0.5           | SMM      |
| 1980 | 109 | 12:12:39 | 3.20  | +/- 0.25 | 105.0             | +/- 1.0           | SMM      |
| 1980 | 109 | 13:31:39 | 3.60  | +/- 0.30 | 105.0             | +/- 1.0           | SMM      |

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

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

START TIME:

tstart=DOY108 19:17 from derivative = 0  
Event begins at 1.81 Solar Radii  
Origin defined at DOY109 4: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.542E-03 +/- 0.266E-03 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.220E+01 +/- 0.359E-01 [solar radii]  
c(2) = 0.147E-02 +/- 0.359E-03 [radii/min]  
c(2) = 0.170E+02 +/- 0.417E+01 [km/sec]  
c(3) = 0.140E-05 +/- 0.689E-06 [radii/min\*\*2]  
c(3) = 0.542E-03 +/- 0.266E-03 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.48967E-01 [radii] Bevington pg 154 (8-30)  
Exact error in c(1) = 0.34005E-03 [radii] Bevington pg 154 (8-28)  
Approximate error in c(2) = 0.46171E-03 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.12760E-04 [radii/min] Bevington pg 154 (8-28)

Approximate error in c(3) = 0.77680E-06 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.53997E-07 [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) = 105. +/- 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 4: 3 = 0.000E+00 km/sec  
The TOTAL velocity at 4: 3 = 17. km/sec

The TANGENTIAL velocity at 4:36 = 0.000E+00 km/sec  
The TOTAL velocity at 4:36 = 18. km/sec

The TANGENTIAL velocity at 5:35 = 0.000E+00 km/sec  
The TOTAL velocity at 5:35 = 20. km/sec

The TANGENTIAL velocity at 5:41 = 0.000E+00 km/sec  
The TOTAL velocity at 5:41 = 20. km/sec

The TANGENTIAL velocity at 7:14 = 0.000E+00 km/sec  
The TOTAL velocity at 7:14 = 23. km/sec

The TANGENTIAL velocity at 7:46 = 0.000E+00 km/sec  
The TOTAL velocity at 7:46 = 24. km/sec

The TANGENTIAL velocity at 9:22 = 0.000E+00 km/sec  
The TOTAL velocity at 9:22 = 27. km/sec

The TANGENTIAL velocity at 12:12 = 0.000E+00 km/sec  
The TOTAL velocity at 12:12 = 33. km/sec

The TANGENTIAL velocity at 13:31 = 0.000E+00 km/sec  
The TOTAL velocity at 13:31 = 36. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.47

Standard Deviation in start time measurement = 0.188E+03



Value of reduced Chi Squared returned from nllst2 = 0.285E-02

Reduced Chi Squared = 0.324E-01

Chi Squared = 0.195E+00

The probability for exceeding chi square = 0.100E+01

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 = 0.8146E+00

The correlation between the data and the time\*\*2 term = 0.7289E+00

The correlation between the data and the complete equation of motion = 0.9761E+00

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