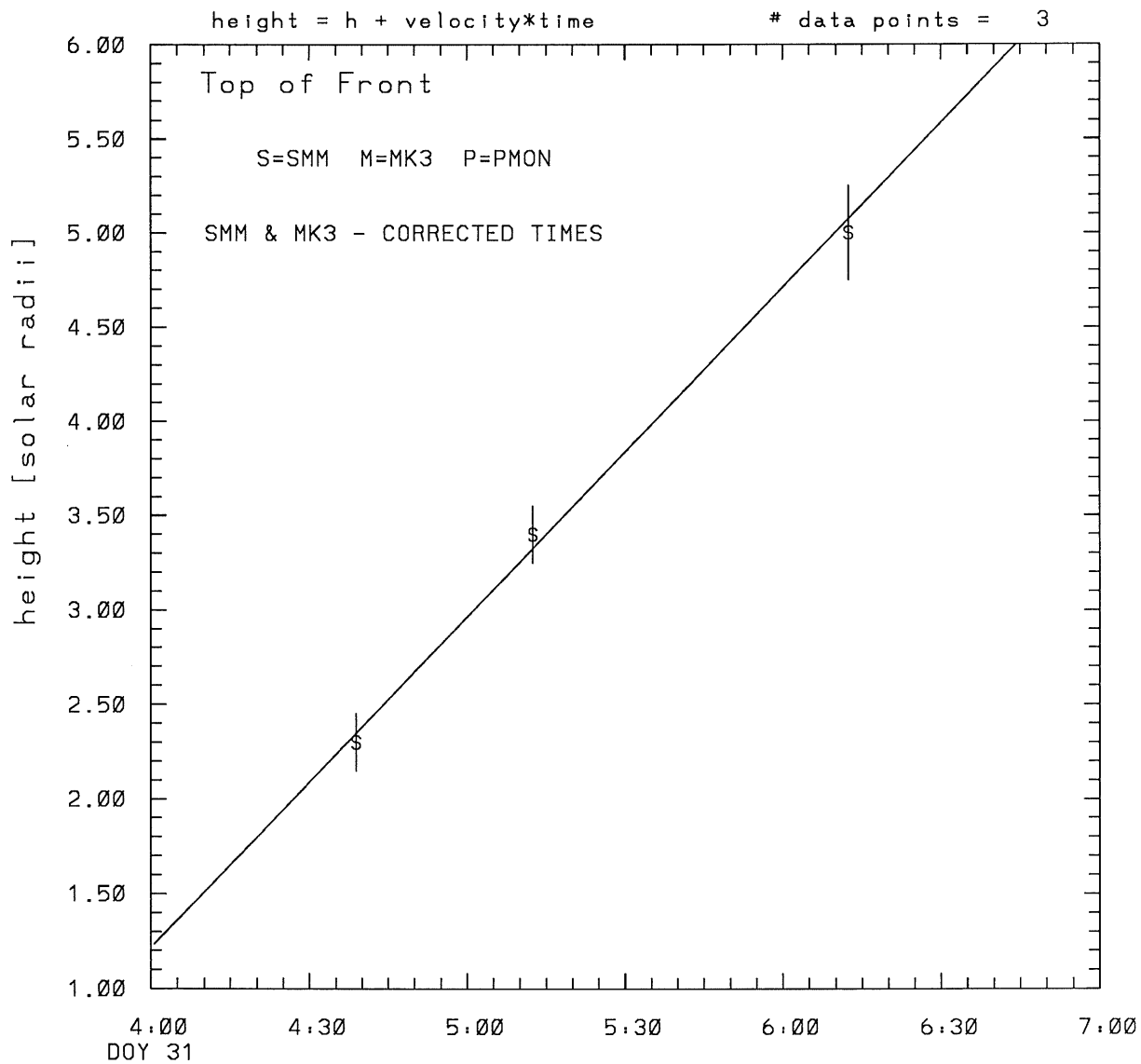
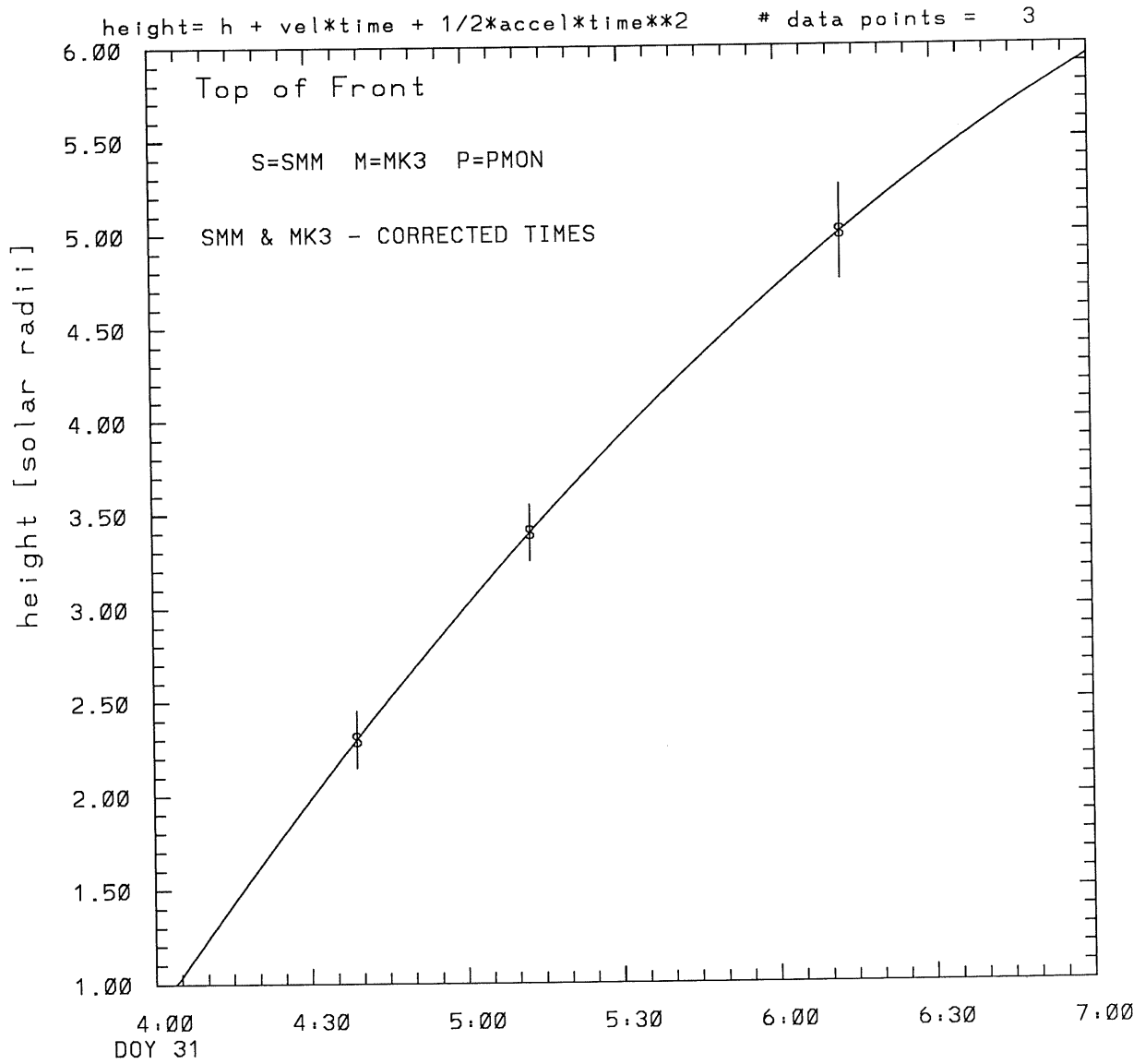


SMM C/P 1989 DOY 31 45 +/- 0 degrees



tstart=DOY 31 3.53 +/- 0.5 [min.]  
radial velocity= 338. +/- 17. [km/sec]

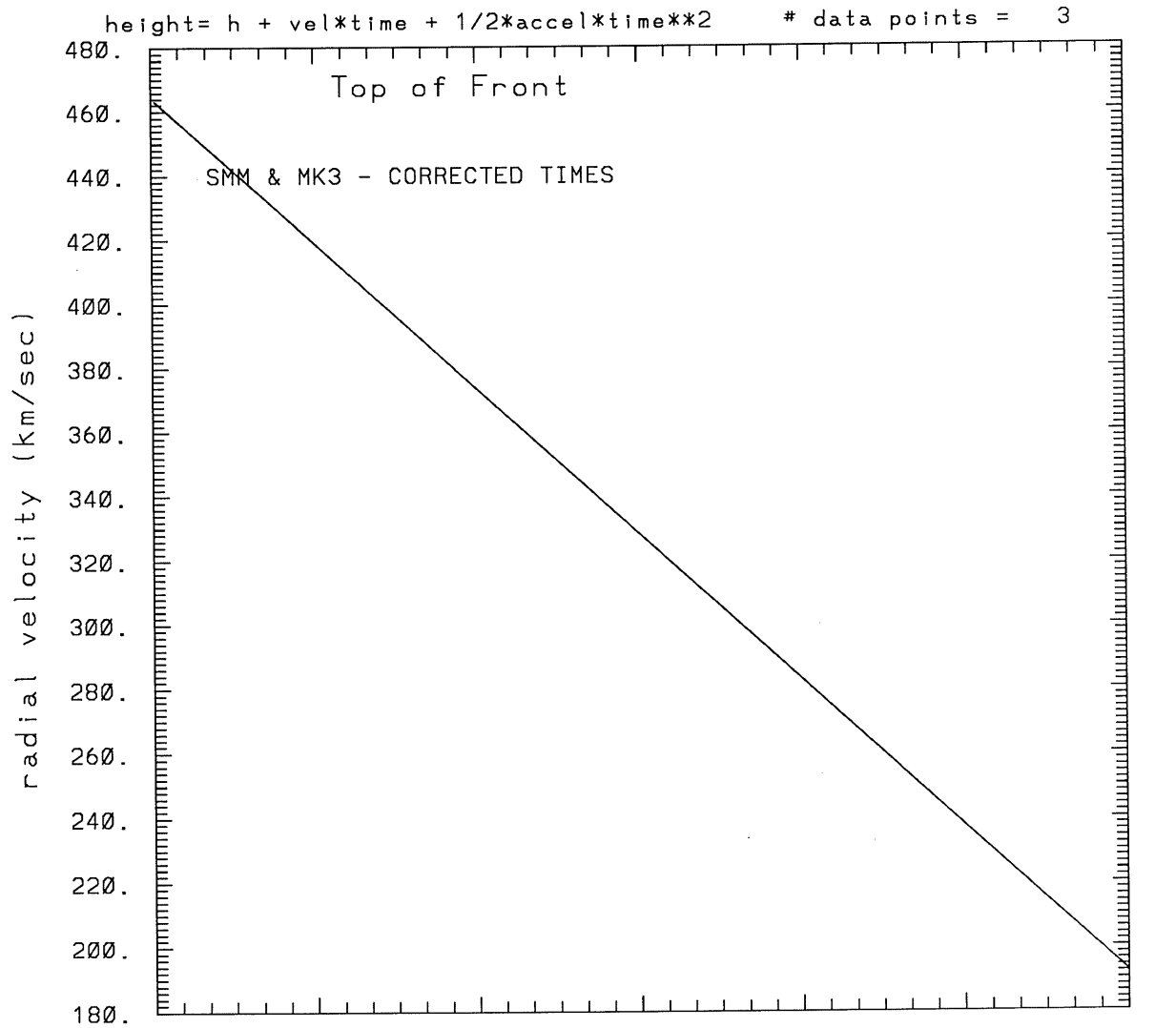
SMM C/P 1989 DOY 31 45 +/- 0 degrees



tstart=DOY 31 4: 4 +/- 0.0 [min.]

radial acceleration=-0.0252 +/- 0.0000 [km/sec\*\*2]

SMM C/P 1989 DOY 31 45 +/- 0 degrees



DOY 31 tstart=DOY 31 4: 4 +/- 0.0 [min.]

radial acceleration=-.252E-01 km/sec\*\*2

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

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

| year | day | time    | radii | error in radius | angle | error in angle | datatype |
|------|-----|---------|-------|-----------------|-------|----------------|----------|
| 1989 | 31  | 4:38:53 | 2.30  | +/- 0.15        | 45.0  | +/- 0.5        | SMM      |
| 1989 | 31  | 5:12:27 | 3.40  | +/- 0.15        | 45.0  | +/- 0.5        | SMM      |
| 1989 | 31  | 6:12:26 | 5.00  | +/- 0.25        | 45.0  | +/- 0.5        | SMM      |

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

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

START TIME:

Event began at t = 0 + -0.736E+01 +/- 0.499E+00 [minutes]  
In more convenient units:  
Event began at DOY 31 3:53 +/- 0.499E+00 [minutes]

Origin defined at DOY 31 4: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 338. +/- 17. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

- c(1) = 0.121E+01 +/- 0.107E+00 [solar radii]
- c(2) = 0.291E-01 +/- 0.144E-02 [radii/min]
- c(2) = 0.338E+03 +/- 0.167E+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)= 0.15447E+00 [radii] see Bevington pg. 114  
error in c(2)= 0.17163E-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) = 45. +/- 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 4:38 = 0. km/sec

The TOTAL velocity at 4:38 = 338. km/sec

The TANGENTIAL velocity at 5:12 = 0. km/sec

The TOTAL velocity at 5:12 = 338. km/sec

The TANGENTIAL velocity at 6:12 = 0. km/sec

The TOTAL velocity at 6:12 = 338. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 1.36

Standard Deviation in start time measurement = 0.387E+02

Error in time = 0.39472E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.619E-02

Reduced Chi Squared = 0.297E-01

Chi Squared = 0.297E-01

The probability for exceeding chi square = 0.937E+00

The correlation coefficient = 0.998E+00

The probability that no LINEAR correlation exists between the variables = 0.3507E-01

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

\*\*\*\*\*

This is a 2 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

| year | day | time    | radii | error in radius | angle | error in angle | datatype |
|------|-----|---------|-------|-----------------|-------|----------------|----------|
| 1989 | 31  | 4:38:53 | 2.30  | +/- 0.15        | 45.0  | +/- 0.5        | SMM      |
| 1989 | 31  | 5:12:27 | 3.40  | +/- 0.15        | 45.0  | +/- 0.5        | SMM      |
| 1989 | 31  | 6:12:26 | 5.00  | +/- 0.25        | 45.0  | +/- 0.5        | SMM      |

\*\*\*\*\*

Structure being measured:

Top of Front

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at  $t = 0 + 0.397E+01 \pm 0.000E+00$  [minutes]

In more convenient units:

Event began at DOY 31 4: 4  $\pm 0.000E+00$  [minutes]

Origin defined at DOY 31 4: 0

RADIAL INFORMATION:

RADIAL ACCELERATION =  $-0.252E-01 \pm 0.540E-07$  km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.842E+00 \pm 0.861E-06$  [solar radii]  
 $c(2) = 0.400E-01 \pm 0.237E-07$  [radii/min]  
 $c(2) = 0.464E+03 \pm 0.275E-03$  [km/sec]  
 $c(3) = -0.652E-04 \pm 0.140E-09$  [radii/min\*\*2]  
 $c(3) = -0.252E-01 \pm 0.540E-07$  [km/sec\*\*2]

ANGULAR INFORMATION:

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

The computed ANGULAR coefficients and errors FROM NLLST2 are:

$a(1) = 45. \pm 0.$  [degrees]  
 $a(2) = 0.000E+00 \pm 0.000E+00$  [degrees/min]  
 $a(2) = 0.000E+00 \pm 0.000E+00$  [rad/sec]  
 $a(3) = 0.000E+00 \pm 0.000E+00$  [degrees/min\*\*2]

$$a(3) = 0.000E+00 +/- 0.000E+00 \text{ [rad/sec**2]}$$

THE TANGENTIAL AND TOTAL VELOCITIES AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 4:38 = 0. km/sec

The TOTAL velocity at 4:38 = 406. km/sec

The TANGENTIAL velocity at 5:12 = 0. km/sec

The TOTAL velocity at 5:12 = 355. km/sec

The TANGENTIAL velocity at 6:12 = 0. km/sec

The TOTAL velocity at 6:12 = 264. km/sec

\*\*\*\*\*

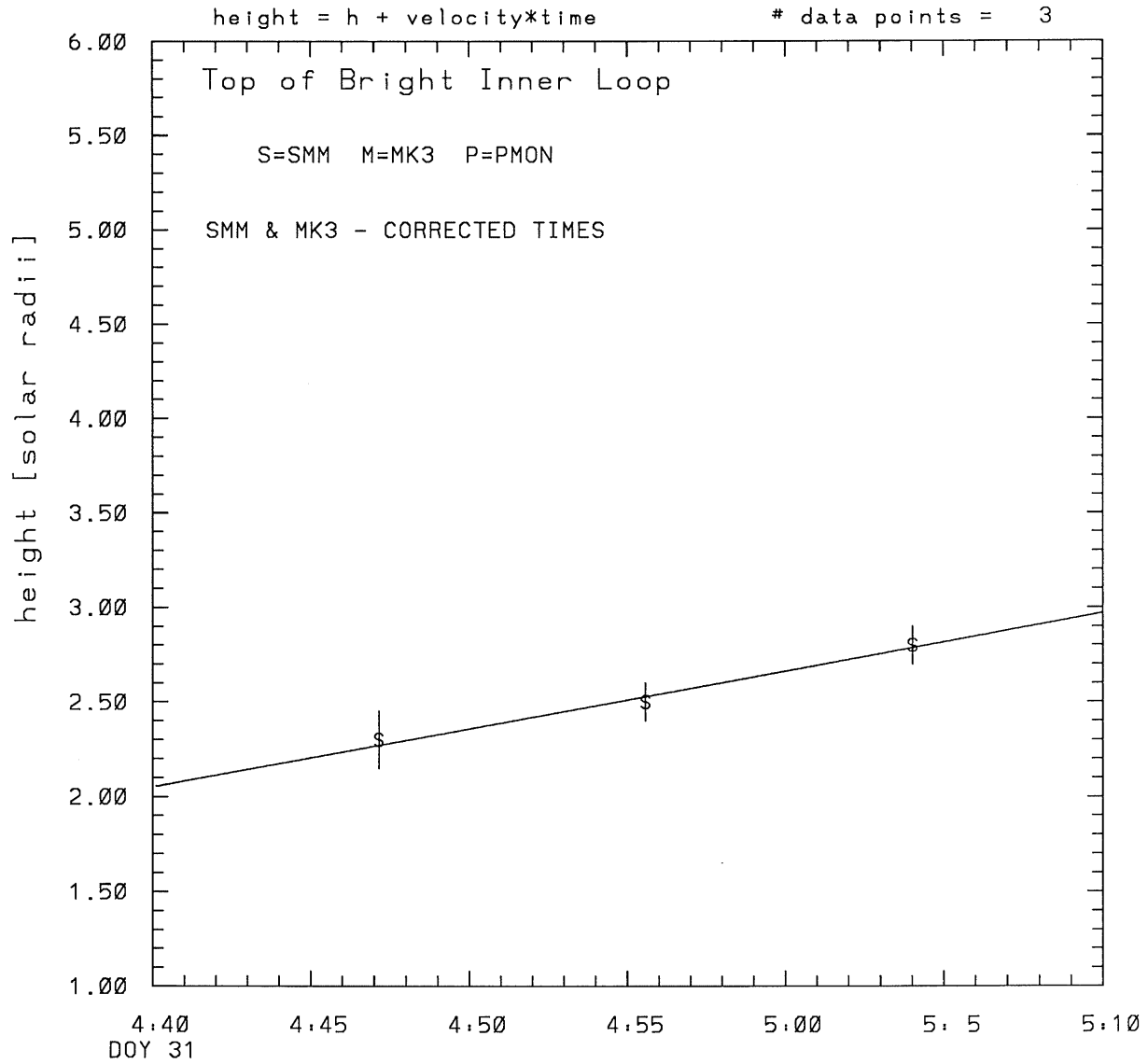
The following info is for estimating goodness of the fit

\*\*\*\*\*

Number data points = number of coefficients. No error analysis is possible.

Correlation coefficient is not computable!

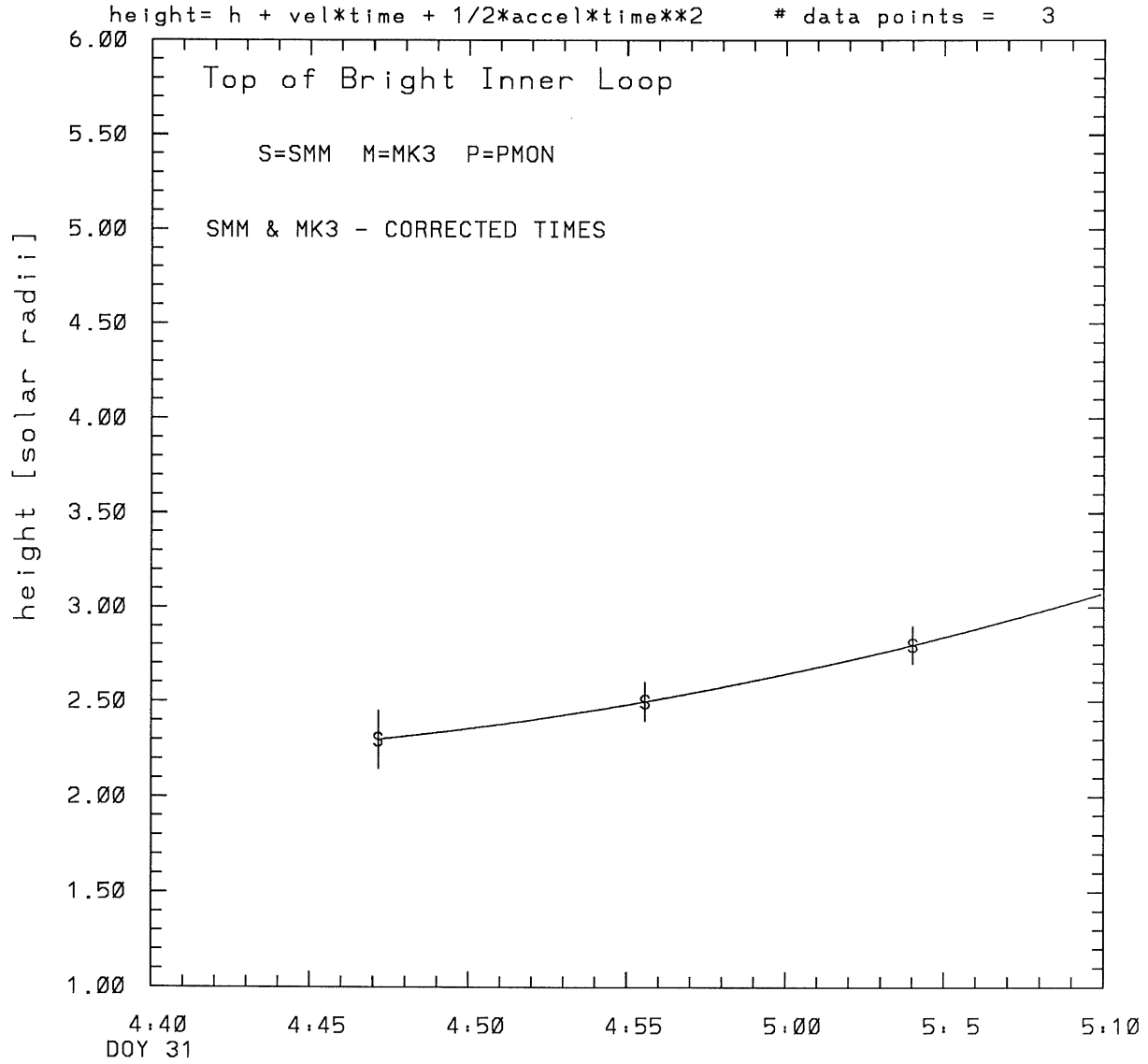
SMM C/P 1989 DOY 31 20 +/- 0 degrees



tstart=DOY 31 4: 6 +/- 2.2 [min.]  
radial velocity= 356. +/- 31. [km/sec]

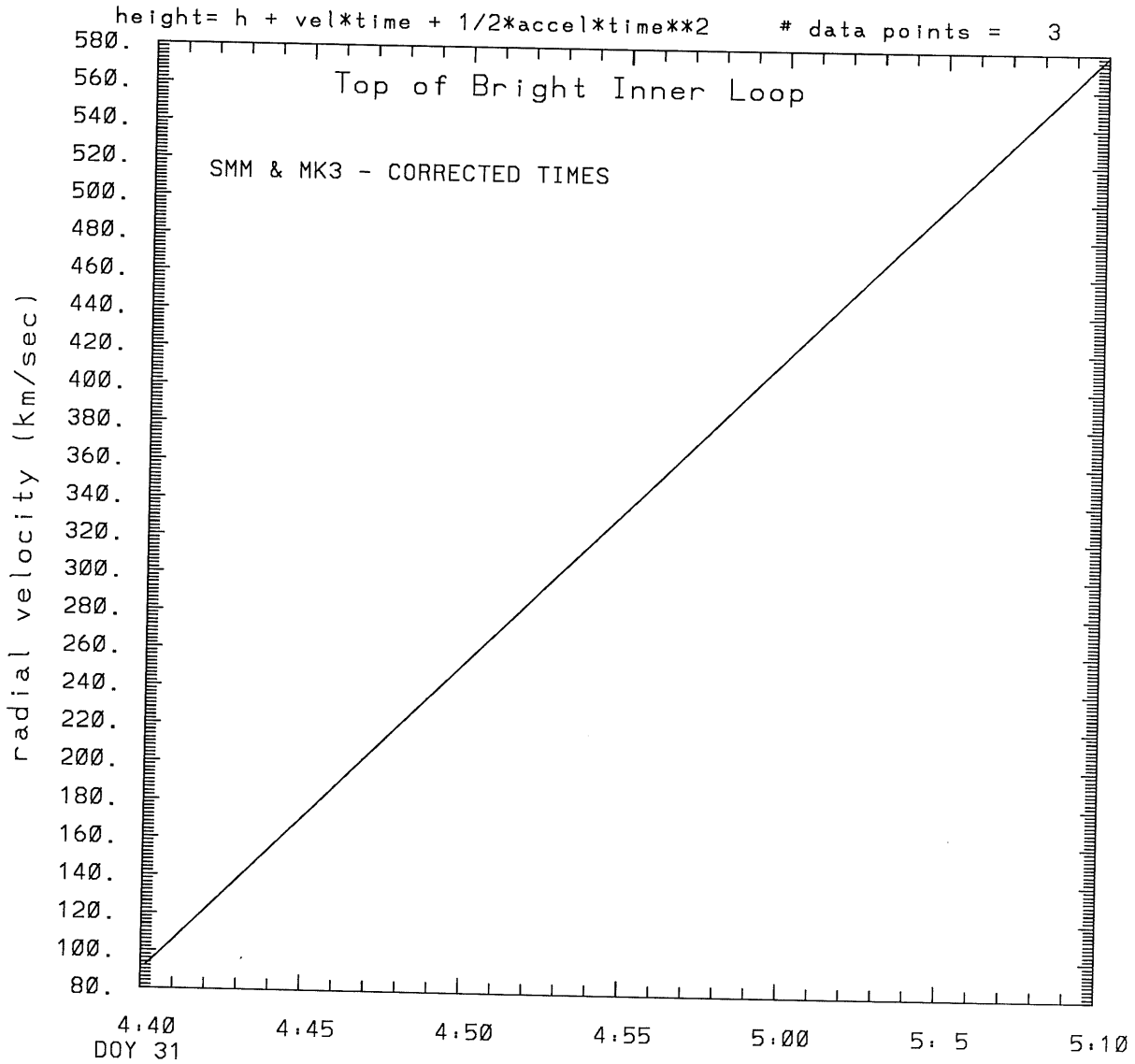


SMM C/P 1989 DOY 31 20 +/- 0 degrees



tstart=DOY 31 4:35 from derivative=0  
Event begins at 2.19 Solar Radii  
radial acceleration = 0.2718 +/- 0.0000 [km/sec\*\*2]

SMM C/P 1989 DOY 31 20 +/- 0 degrees



tstart=DOY 31 4:35 from derivative=0  
Event begins at 2.19 Solar Radii  
radial acceleration=0.272E+00 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 |
|------|-----|---------|----------------|-----------------|----------------|----------------|----------|
| 1989 | 31  | 4:47:9  | 2.30 +/- 0.15  | 20.0 +/- 0.5    |                |                | SMM      |
| 1989 | 31  | 4:55:35 | 2.50 +/- 0.10  | 20.0 +/- 0.5    |                |                | SMM      |
| 1989 | 31  | 5:4:1   | 2.80 +/- 0.10  | 20.0 +/- 0.5    |                |                | SMM      |

\*\*\*\*\*

Structure being measured:

Top of Bright Inner Loop

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.342E+02 +/- 0.221E+01$  [minutes]

In more convenient units:

Event began at DOY 31 4: 6 +/- 0.221E+01 [minutes]

Origin defined at DOY 31 4:40

RADIAL INFORMATION:

RADIAL VELOCITY = 356. +/- 31. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.205E+01 +/- 0.503E-01$  [solar radii]  
 $c(2) = 0.307E-01 +/- 0.271E-02$  [radii/min]  
 $c(2) = 0.356E+03 +/- 0.315E+02$  [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  $c(1) = 0.62501E-01$  [radii] see Bevington pg. 114

error in  $c(2) = 0.36686E-02$  [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) = 20. +/- 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 4:47 = 0. km/sec

The TOTAL velocity at 4:47 = 356. km/sec

The TANGENTIAL velocity at 4:55 = 0. km/sec

The TOTAL velocity at 4:55 = 356. km/sec

The TANGENTIAL velocity at 5: 4 = 0. km/sec

The TOTAL velocity at 5: 4 = 356. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.25

Standard Deviation in start time measurement = 0.689E+01

Error in time = 0.14268E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.846E-03

Reduced Chi Squared = 0.306E-02

Chi Squared = 0.306E-02

The probability for exceeding chi square = 0.977E+00

The correlation coefficient = 0.993E+00

The probability that no LINEAR correlation exists between the variables = 0.7315E-01

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

\*\*\*\*\*

This is a 2 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

| year | doy | time    | radii | error in radius | angle | error in angle | datatype |
|------|-----|---------|-------|-----------------|-------|----------------|----------|
| 1989 | 31  | 4:47: 9 | 2.30  | +/- 0.15        | 20.0  | +/- 0.5        | SMM      |
| 1989 | 31  | 4:55:35 | 2.50  | +/- 0.10        | 20.0  | +/- 0.5        | SMM      |
| 1989 | 31  | 5: 4: 1 | 2.80  | +/- 0.10        | 20.0  | +/- 0.5        | SMM      |

\*\*\*\*\*

Structure being measured:

Top of Bright Inner Loop

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

tstart=DOY 31 4:35 from derivative = 0

Event begins at 2.19 Solar Radii

Origin defined at DOY 31 4:40

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.272E+00 +/- 0.181E-04 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.221E+01 +/- 0.116E-04 [solar radii]  
c(2) = 0.773E-02 +/- 0.155E-05 [radii/min]  
c(2) = 0.897E+02 +/- 0.180E-01 [km/sec]  
c(3) = 0.703E-03 +/- 0.468E-07 [radii/min\*\*2]  
c(3) = 0.272E+00 +/- 0.181E-04 [km/sec\*\*2]

ANGULAR INFORMATION:

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

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 20. +/- 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 4:47 = 0. km/sec

The TOTAL velocity at 4:47 = 206. km/sec

The TANGENTIAL velocity at 4:55 = 0. km/sec

The TOTAL velocity at 4:55 = 344. km/sec

The TANGENTIAL velocity at 5: 4 = 0. km/sec

The TOTAL velocity at 5: 4 = 481. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Number data points = number of coefficients. No error analysis is possible.

Correlation coefficient is not computable!