SMM C/P 1989 DOY239   320 +/-   0 degrees

height = h + velocity*time   # data points =   4

Top of Outer Mound

S=SMM   M=MK3   P=PMON

SMM & MK3 — CORRECTED TIMES

height [solar radii]

6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
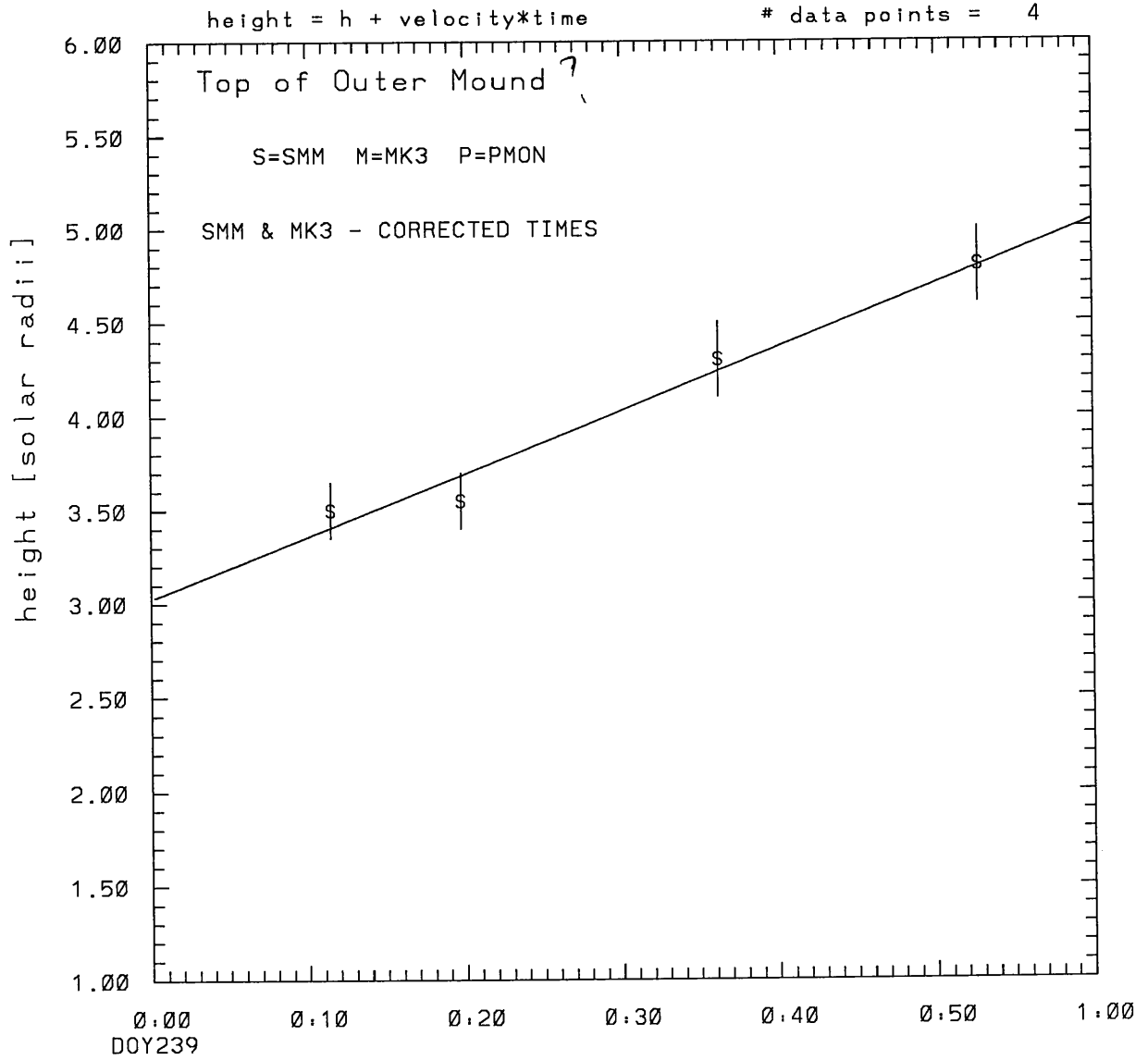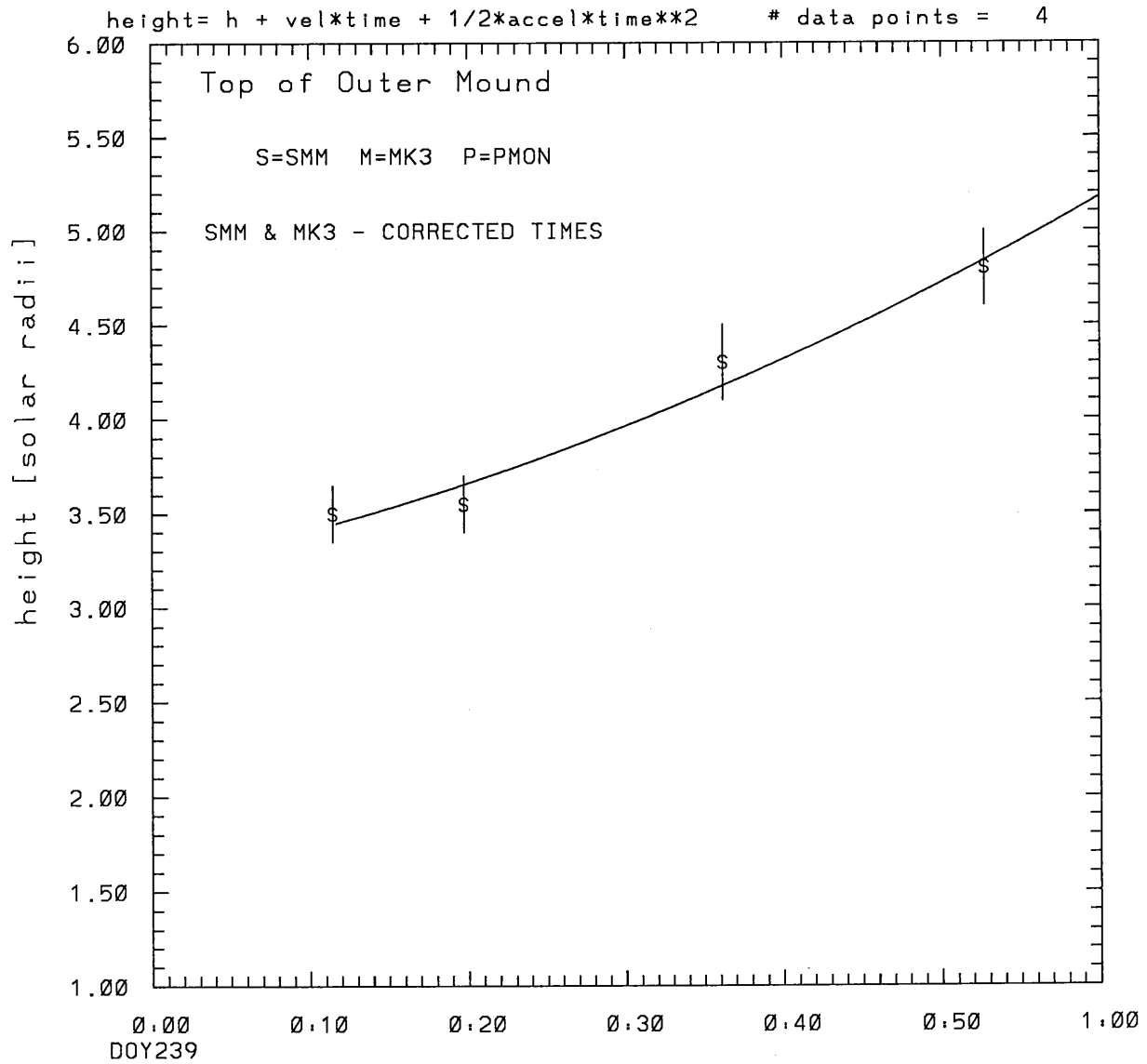1.50
1.00

0:00   0:10   0:20   0:30   0:40   0:50   1:00
DOY239

tstart=DOY238 23: 0 +/-   2.6 [min.]
radial velocity= 389. +/- 43. [km/sec]

SMM C/P 1989 DOY239 320 +/- 0 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   4

Top of Outer Mound

S=SMM M=MK3 P=PMON

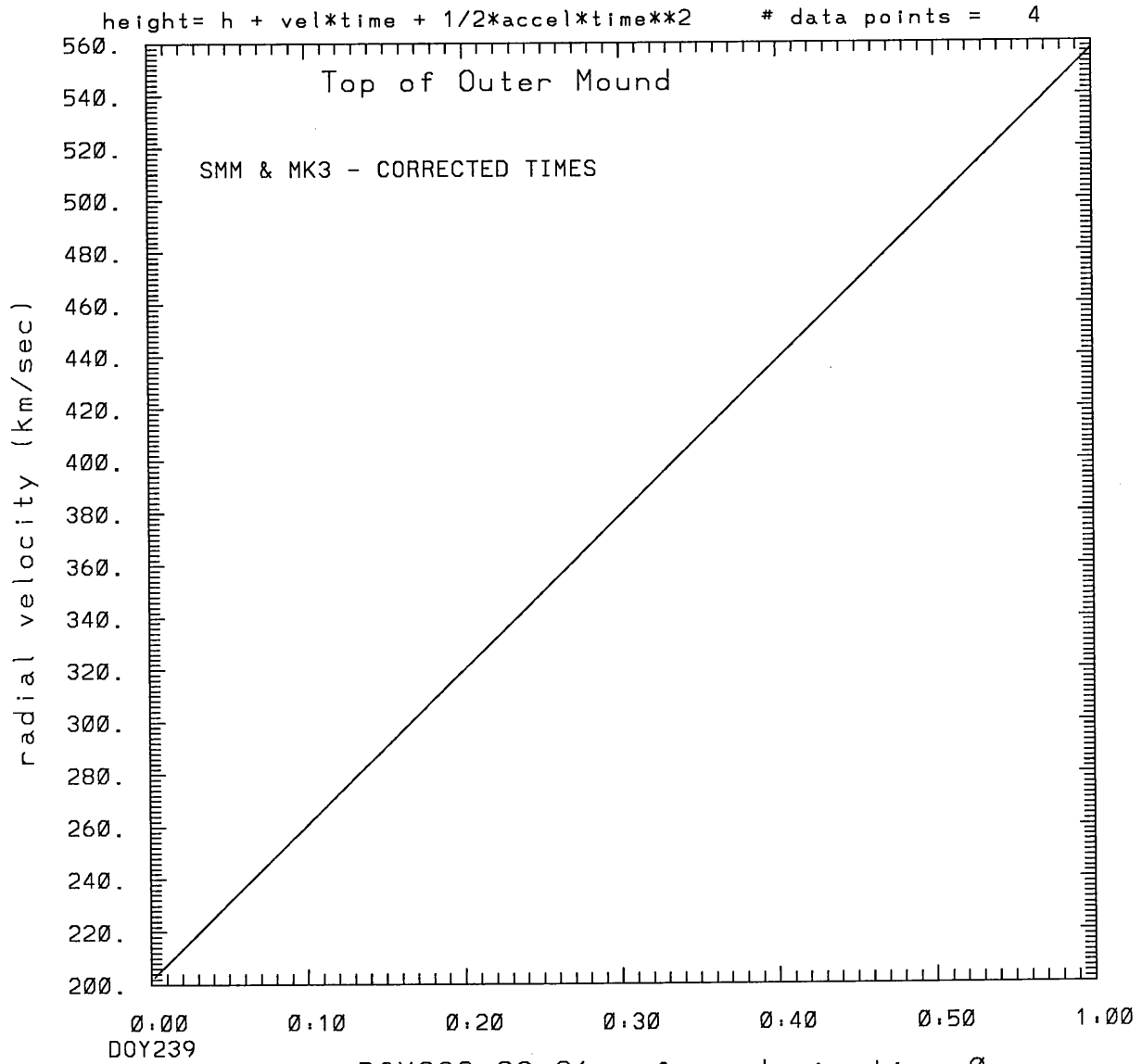SMM & MK3 - CORRECTED TIMES

height [solar radii]

tstart=DOY238 23:26   from derivative=0
Event begins at   2.92 Solar Radii
radial acceleration= 0.0987 +/- 0.1417 [km/sec**2]
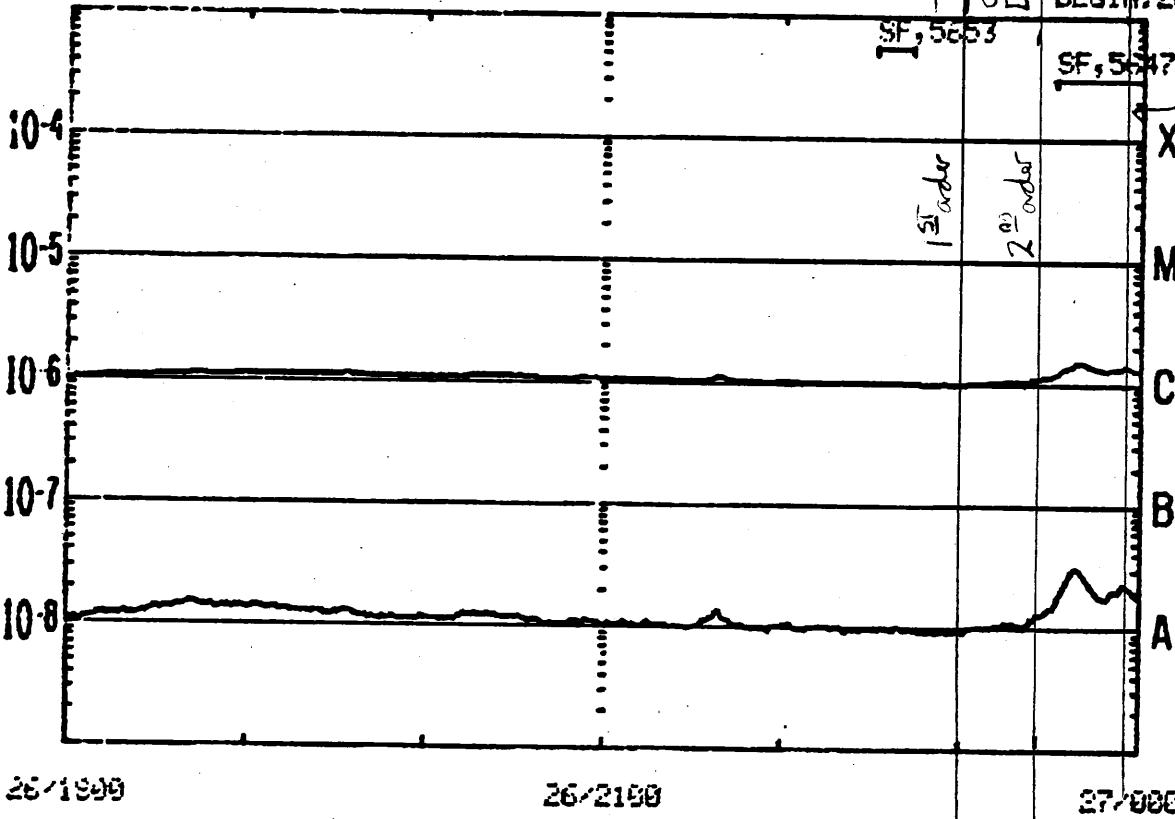
SMM C/P 1989 DOY239 320 +/- 0 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   4

Top of Outer Mound

SMM & MK3 - CORRECTED TIMES

radial velocity (km/sec)

560.
540.
520.
500.
480.
460.
440.
420.
400.
380.
360.
340.
320.
300.
280.
260.
240.
220.
200.

0.00   0.10   0.20   0.30   0.40   0.50   1.00
DOY239

tstart=DOY238 23:26   from derivative=0
Event begins at   2.92 Solar Radii
radial acceleration=0.987E-01 km/sec**2

1989 Doy 238

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

```
********************
 This is a 1 order run
********************


*******
 INPUT:
*******
```

		error in		error in		
year doy	time	radii	radius	angle	angle	datatype
1989 239	0:11:26	3.50	+/- 0.15	320.0	+/- 1.0	SMM
1989 239	0:19:43	3.55	+/- 0.15	320.0	+/- 1.0	SMM
1989 239	0:36:12	4.30	+/- 0.20	320.0	+/- 1.0	SMM
1989 239	0:52:42	4.80	+/- 0.20	320.0	+/- 1.0	SMM

```
*****************************************
 Structure being measured:
Top of Outer Mound
*****************************************


*******
 OUTPUT:
*******


START TIME:


Event began at t = 0 + -0.604E+02 +/- 0.263E+01 [minutes]
In more convenient units:
Event began at DOY 238 23:00 +/- 0.263E+01 [minutes]


Event began at DOY 238 23: 0 +/- 0.263E+01 [minutes]


Origin defined at DOY239 0: 0

RADIAL INFORMATION:


RADIAL VELOCITY =  389. +/-   43. km/sec


The computed RADIAL coefficients and errors FROM NLLST2 are:


    c(1) =   0.302E+01 +/-   0.111E+00 [solar radii]
    c(2) =   0.335E-01 +/-   0.369E-02 [radii/min]
    c(2) =   0.389E+03 +/-   0.428E+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)= 0.13300E+00 [radii] see Bevington pg. 114
            error in c(2)= 0.39188E-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) = 320. +/- 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 0:11 =   0. km/sec
The TOTAL velocity at 0:11 = 389. km/sec

The TANGENTIAL velocity at 0:19 =   0. km/sec
The TOTAL velocity at 0:19 = 389. km/sec

The TANGENTIAL velocity at 0:36 =   0. km/sec
The TOTAL velocity at 0:36 = 389. km/sec

The TANGENTIAL velocity at 0:52 =   0. km/sec
The TOTAL velocity at 0:52 = 389. km/sec

****
 The following info is for estimating goodness of the fit
****

 Fit is ok [ier=1]

Standard Deviation in the height = 0.63
Standard Deviation in start time measurement =   0.158E+02
Error in time =   0.52397E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.124E-01
Reduced Chi Squared = 0.286E-01
Chi Squared = 0.572E-01
The probability for exceeding chi square = 0.988E+00

The correlation coefficient =   0.987E+00
The probability that no LINEAR correlation exists between the variables =   0.1305E-01
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

```
********************
 This is a 2 order run
********************


*******
 INPUT:
*******


                         error in        error in
year doy   time   radii  radius    angle  angle   datatype
1989 239  0:11:26  3.50 +/- 0.15   320.0 +/-  1.0    SMM
1989 239  0:19:43  3.55 +/- 0.15   320.0 +/-  1.0    SMM
1989 239  0:36:12  4.30 +/- 0.20   320.0 +/-  1.0    SMM
1989 239  0:52:42  4.80 +/- 0.20   320.0 +/-  1.0    SMM


*****************************************
 Structure being measured:
Top of Outer Mound
*****************************************


********
 OUTPUT:
********


START TIME:


tstart=DOY238 23:26 from derivative = 0
Event begins at   2.92 Solar Radii
 Origin defined at DOY239  0: 0


RADIAL INFORMATION:


RADIAL ACCELERATION =  0.987E-01 +/-  0.142E+00 km/sec**2


The computed RADIAL coefficients and errors FROM NLLST2 are:


c(1) =    0.321E+01 +/-    0.297E+00 [solar radii]
c(2) =    0.174E-01 +/-    0.235E-01 [radii/min]
c(2) =    0.202E+03 +/-    0.273E+03 [km/sec]
c(3) =    0.255E-03 +/-    0.367E-03 [radii/min**2]
c(3) =    0.987E-01 +/-    0.142E+00 [km/sec**2]


The computed ERRORS in coefficients [BEVINGTON] are:


     Approximate error in c(1) =  0.43001E+00 [radii] Bevington pg 154 (8-30)
          Exact error in c(1) =  0.19133E+00 [radii] Bevington pg 154 (8-28)
     Approximate error in c(2) =  0.32365E-01 [radii/min] Bevington pg 154 (8-30)
          Exact error in c(2) =  0.17025E-01 [radii/min] Bevington pg 154 (8-28)
     Approximate error in c(3) =  0.49505E-03 [radii/min**] Bevington pg 154 (8-30)
          Exact error in c(3) =  0.25936E-03 [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) = 320. +/-   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 0:11 =   0. km/sec
The TOTAL velocity at 0:11 = 269. km/sec

The TANGENTIAL velocity at 0:19 =   0. km/sec
The TOTAL velocity at 0:19 = 318. km/sec

The TANGENTIAL velocity at 0:36 =   0. km/sec
The TOTAL velocity at 0:36 = 416. km/sec

The TANGENTIAL velocity at 0:52 =   0. km/sec
The TOTAL velocity at 0:52 = 514. km/sec

****
 The following info is for estimating goodness of the fit
****

Fit is ok [ier=1]

Standard Deviation in the height = 0.63
Standard Deviation in start time measurement =   0.158E+02
Value of reduced Chi Squared returned from nllst2 = 0.150E-01
Reduced Chi Squared = 0.765E-01
Chi Squared = 0.765E-01
The probability for exceeding chi square = 0.903E+00

For a second order fit 3 correlation coefficients are given:
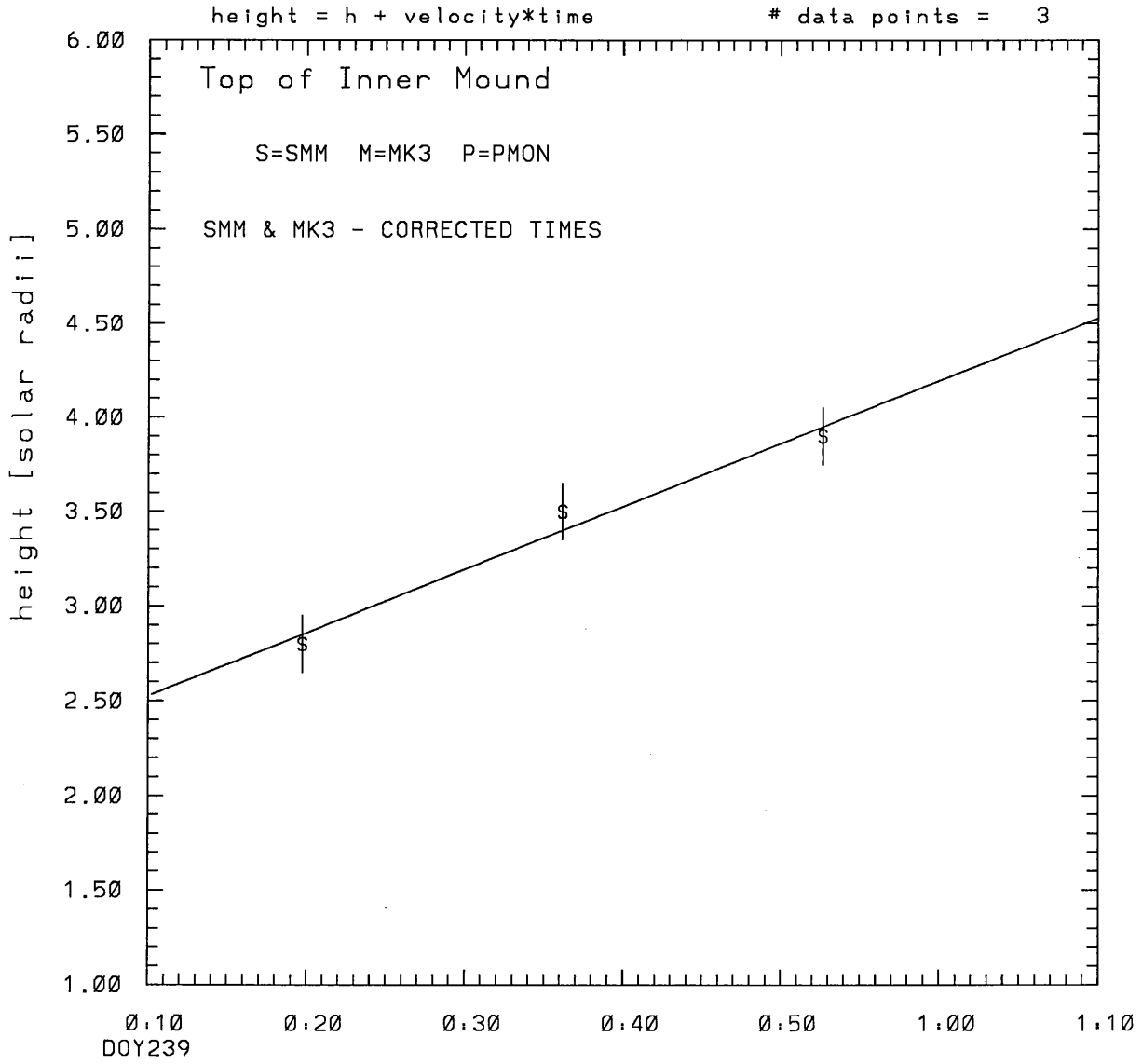 (Using equation of motion: r = a + bt + at**2)
The correlation between the data and the term linear in time = 0.9694E+00
The correlation between the data and the time**2 term =   0.9489E+00
0The correlation between the data and the complete equation of motion =   0.9690E+00
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

SMM C/P 1989 DOY239 320 +/- 0 degrees

height = h + velocity*time   # data points =   3

Top of Inner Mound

S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

height [solar radii]

6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00

0:10   0:20   0:30   0:40   0:50   1:00   1:10
DOY239

tstart=DOY238 23:26 +/-   3.2 [min.]
radial velocity= 387. +/- 43. [km/sec]

SMM C/P 1989 DOY239 320 +/- 0 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   3

Top of Inner Mound

S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

height [solar radii]

6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00

0:10   0:20   0:30   0:40   0:50   1:00   1:10
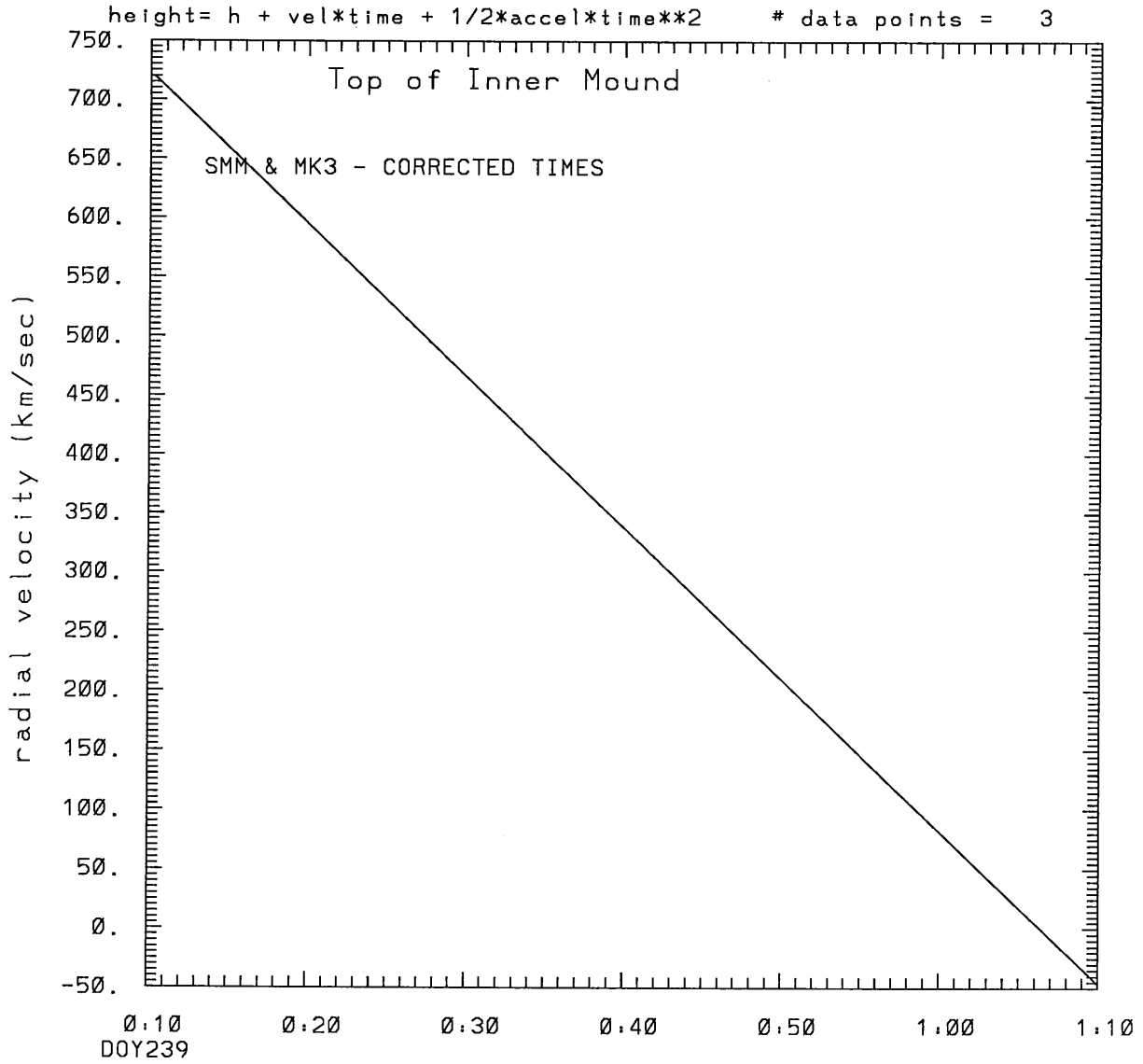DOY239
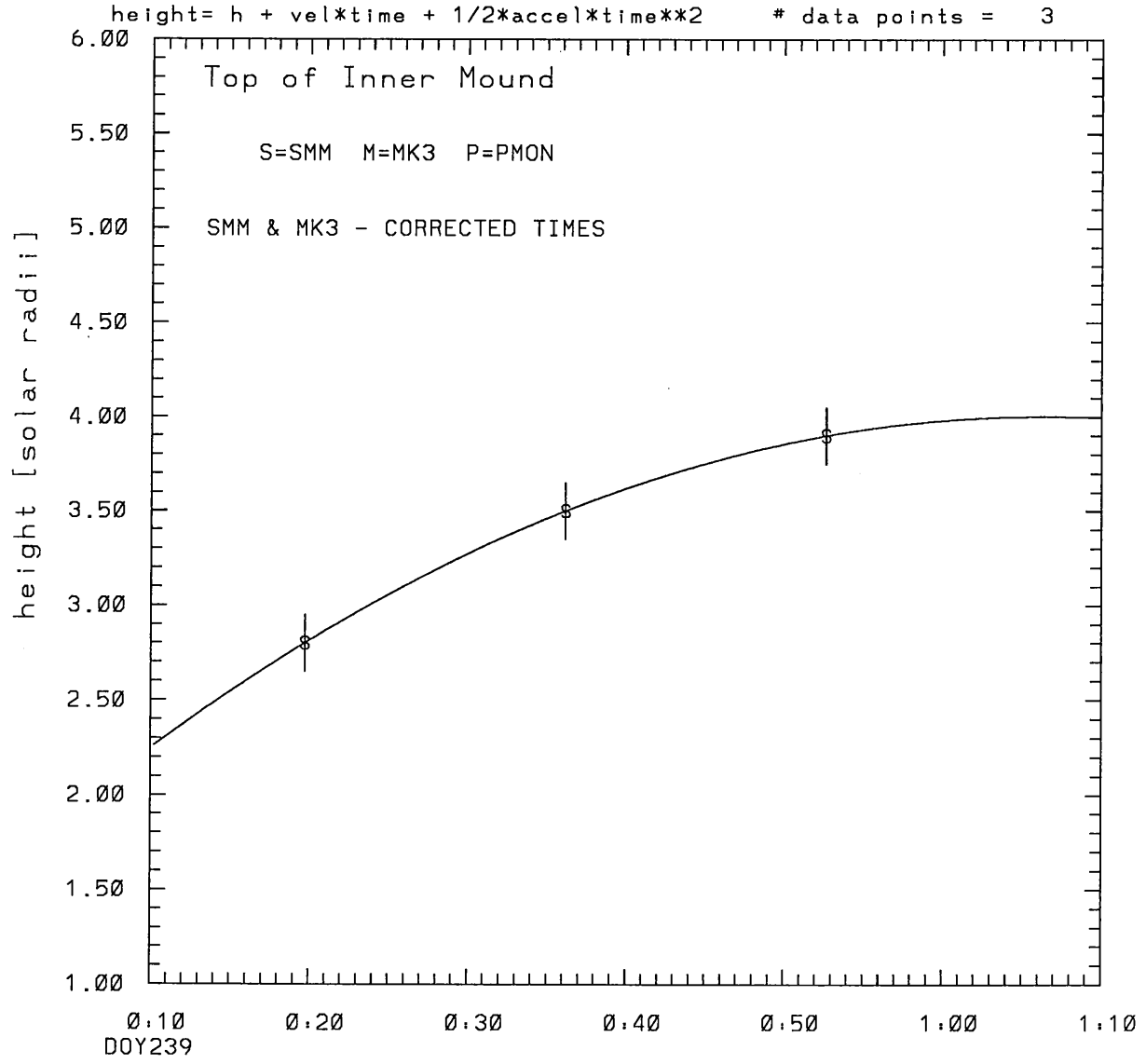
tstart=DOY238 23:53 +/-   0.0 [min.]

radial acceleration=-0.2136 +/- 0.0000 [km/sec**2]

SMM C/P   1989 DOY239   320 +/-   0 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   3

Top of Inner Mound

SMM & MK3 - CORRECTED TIMES

radial velocity (km/sec)

tstart=DOY238 23:53 +/-   0.0 [min.]

radial acceleration=-.214E+00 km/sec**2

```
********************
  This is a 1 order run
********************


*******
  INPUT:
*******
```

			radii	error in radius	angle	error in angle	datatype
year	doy	time					
1989	239	0:19:43	2.80	+/- 0.15	320.0	+/- 1.0	SMM
1989	239	0:36:12	3.50	+/- 0.15	320.0	+/- 1.0	SMM
1989	239	0:52:42	3.90	+/- 0.15	320.0	+/- 1.0	SMM

```
*****************************************
  Structure being measured:
  Top of Inner Mound
*****************************************


********
  OUTPUT:
********


START TIME:

Event began at t = 0 + -0.458E+02 +/- 0.318E+01 [minutes]
In more convenient units:
Event began at DOY 238 23:26 +/- 0.318E+01 [minutes]

Origin defined at DOY239 0:10

RADIAL INFORMATION:

RADIAL VELOCITY =  387. +/-  43. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) =   0.253E+01 +/-   0.110E+00 [solar radii]
c(2) =   0.333E-01 +/-   0.372E-02 [radii/min]
c(2) =   0.387E+03 +/-   0.432E+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)= 0.15500E+00 [radii] see Bevington pg. 114
          error in c(2)= 0.52610E-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) = 320. +/-   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 0:19 =   0. km/sec
The TOTAL velocity at 0:19 = 387. km/sec

The TANGENTIAL velocity at 0:36 =   0. km/sec
The TOTAL velocity at 0:36 = 387. km/sec

The TANGENTIAL velocity at 0:52 =   0. km/sec
The TOTAL velocity at 0:52 = 387. km/sec

****
 The following info is for estimating goodness of the fit
****

Fit is ok [ier=1]

Standard Deviation in the height = 0.56
Standard Deviation in start time measurement =   0.135E+02
Error in time =   0.36793E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.753E-02
Reduced Chi Squared = 0.301E-01
Chi Squared = 0.301E-01
The probability for exceeding chi square = 0.931E+00

The correlation coefficient =   0.988E+00
The probability that no LINEAR correlation exists between the variables =   0.9960E-01
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

```
**********************
 This is a 2 order run
**********************


*******
 INPUT:
*******


                      error in        error in
year doy    time    radii  radius    angle  angle    datatype
1989 239  0:19:43   2.80 +/- 0.15   320.0 +/-  1.0      SMM
1989 239  0:36:12   3.50 +/- 0.15   320.0 +/-  1.0      SMM
1989 239  0:52:42   3.90 +/- 0.15   320.0 +/-  1.0      SMM


****************************************
 Structure being measured:
Top of Inner Mound
****************************************


********
 OUTPUT:
********


START TIME:


Event began at t = 0 + -0.173E+02 +/-  0.000E+00 [minutes]
In more convenient units:
Event began at DOY 238 23:53 +/-  0.000E+00 [minutes]


 Origin defined at DOY239  0:10


RADIAL INFORMATION:


RADIAL ACCELERATION = -0.214E+00 +/-  0.291E-05 km/sec**2


The computed RADIAL coefficients and errors FROM NLLST2 are:


c(1) =    0.225E+01 +/-   0.435E-05 [solar radii]
c(2) =    0.623E-01 +/-   0.400E-06 [radii/min]
c(2) =    0.723E+03 +/-   0.464E-02 [km/sec]
c(3) =   -0.553E-03 +/-   0.752E-08 [radii/min**2]
c(3) =   -0.214E+00 +/-   0.291E-05 [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) = 320. +/-   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 0:19 =   0. km/sec
The TOTAL velocity at 0:19 = 598. km/sec

The TANGENTIAL velocity at 0:36 =   0. km/sec
The TOTAL velocity at 0:36 = 387. km/sec

The TANGENTIAL velocity at 0:52 =   0. km/sec
The TOTAL velocity at 0:52 = 175. 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!