SMM C/P   1988 DOY279   124 +/- 11 degrees

height = h + velocity*time   # data points =   6

Top of Cavity
angular velocity=-.388E-04 [radians/sec]
S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES
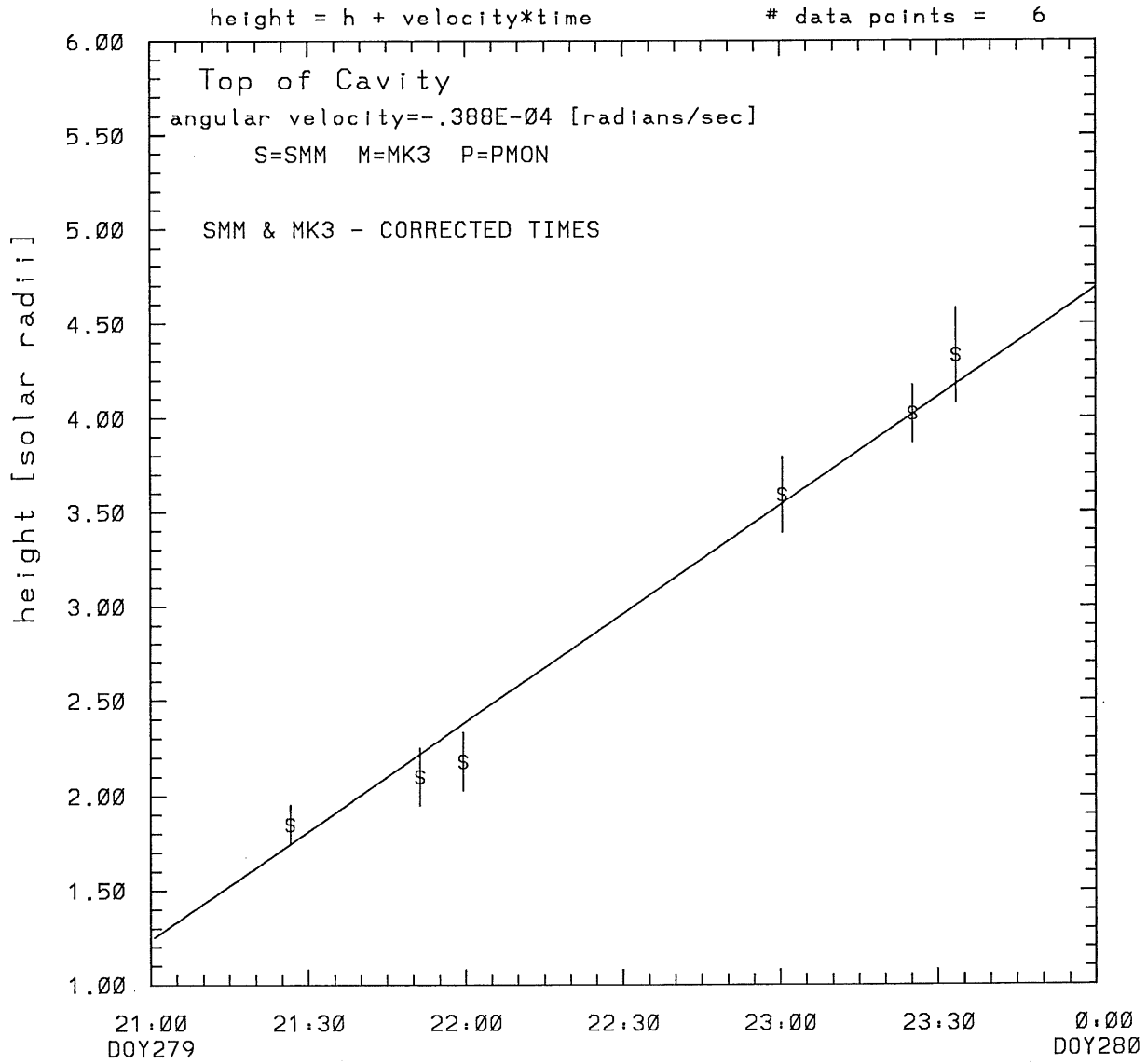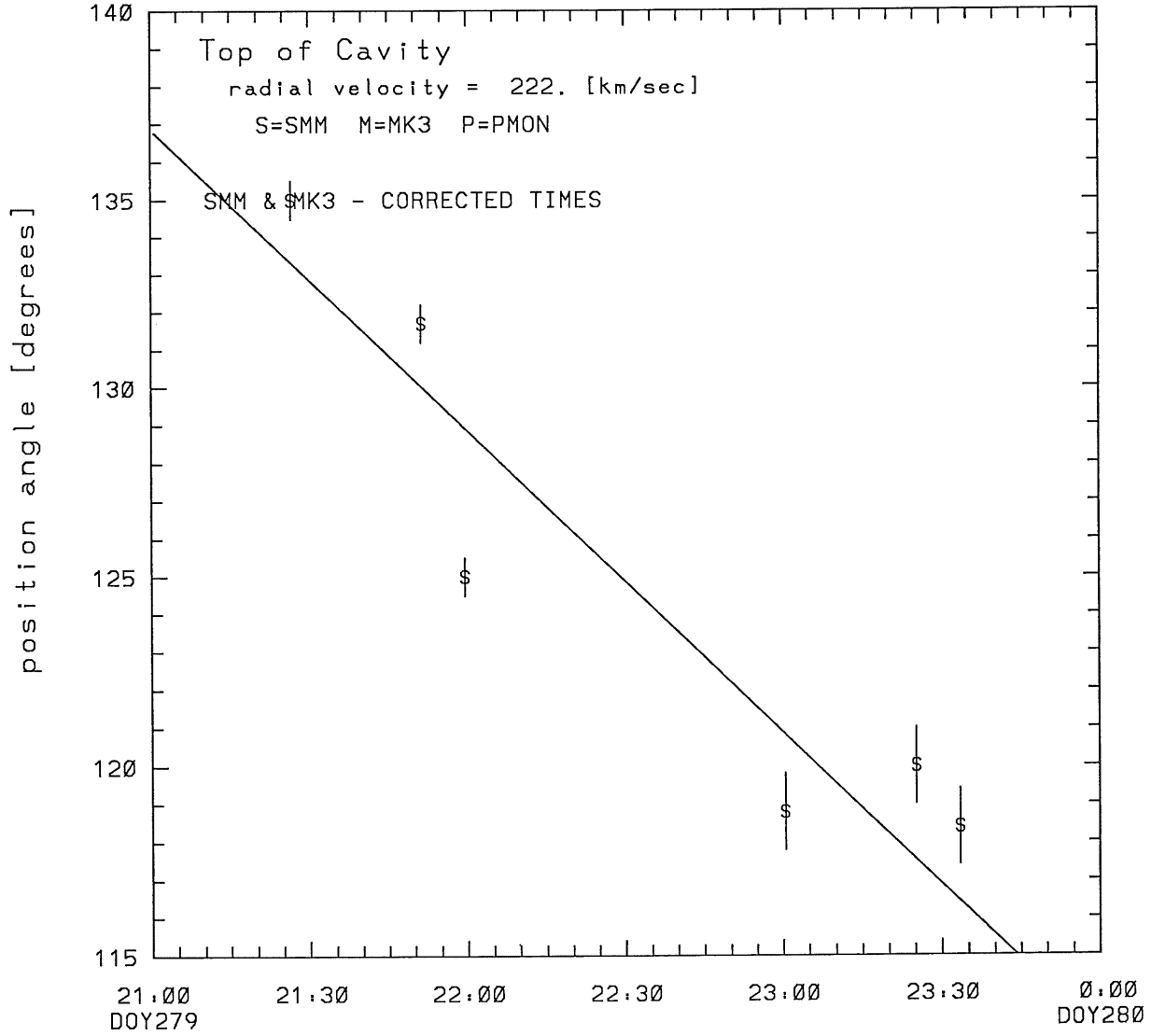
tstart=DOY279 20:48 +/-   0.5 [min.]
radial velocity= 222. +/-   13. [km/sec]

SMM C/P 1988 DOY279 124 +/- 11 degrees

angle= initial angle + angular velocity*time   # data points =   6

Top of Cavity
radial velocity = 222. [km/sec]
S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

position angle [degrees]

140
135
130
125
120
115

21:00   21:30   22:00   22:30   23:00   23:30   0:00
DOY279   DOY280

angular velocity=-.388E-04 +/- 0.830E-05 [rad/sec]

SMM C/P 1988 DOY279 124 +/- 11 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   6

Top of Cavity
ang. acceleration=0.127E-07 [rad/sec**2]
      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

21:00   21:30   22:00   22:30   23:00   23:30   0:00
DOY279   DOY280

tstart=DOY279 20:25   from derivative=0
Event begins at   1.54 Solar Radii
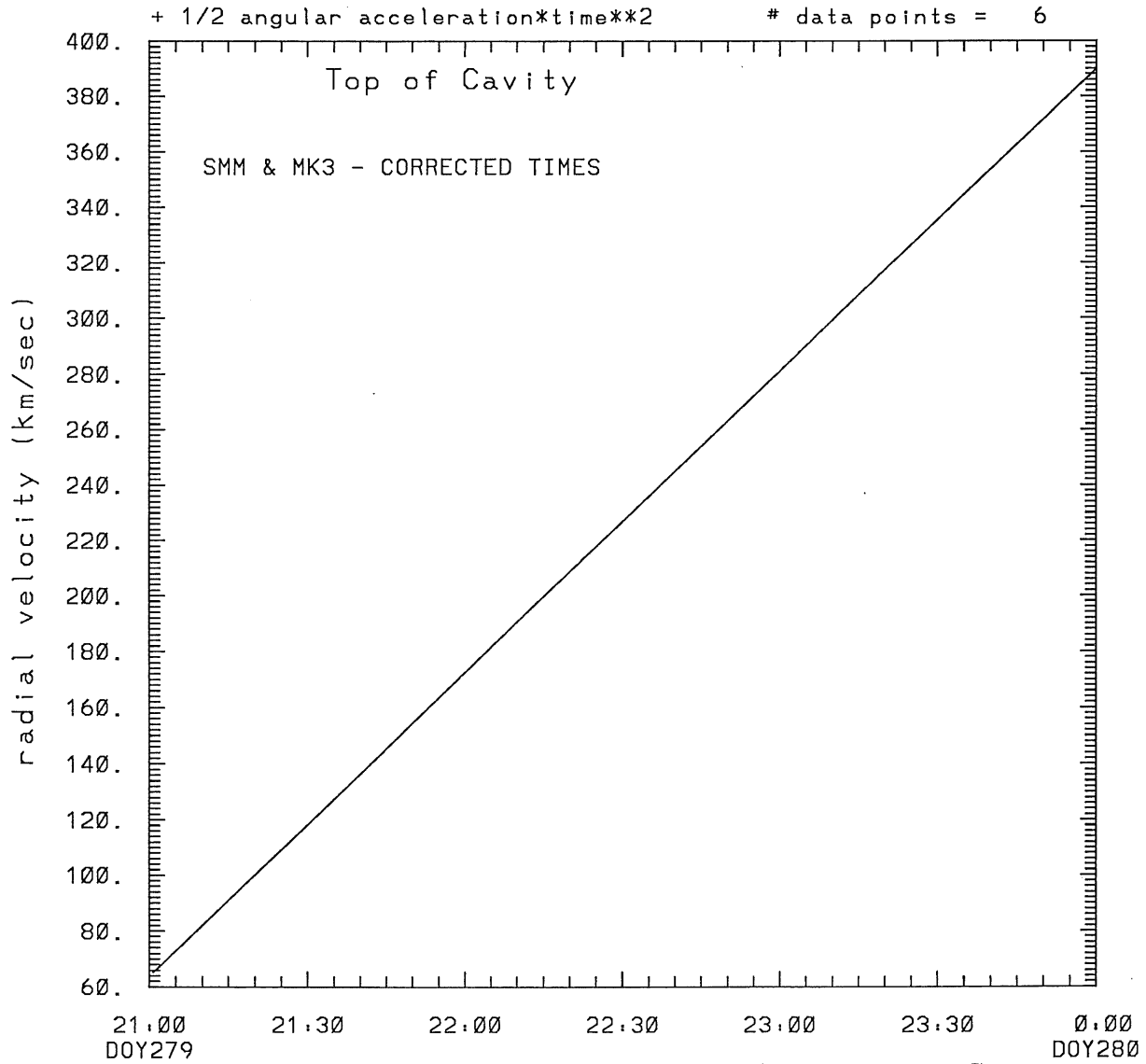radial acceleration= 0.0302 +/- 0.0089 [km/sec**2]

SMM C/P 1988 DOY279 124 +/- 11 degrees

angle= initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2   # data points =   6

Top of Cavity
radial acceleration=0.302E-01 km/sec**2
S=SMM   M=MK3 P=PMON

SMM & MK3 - CORRECTED TIMES

Event begins at   1.54 Solar Radii
angular acceleration=0.127E-07 +/ 0.664E-08 [rad/sec**2]

SMM C/P 1988 DOY279 124 +/- 11 degrees

+ 1/2 angular acceleration*time**2   # data points =   6

Top of Cavity

SMM & MK3 - CORRECTED TIMES

radial velocity (km/sec)

400.
380.
360.
340.
320.
300.
280.
260.
240.
220.
200.
180.
160.
140.
120.
100.
80.
60.

21:00   21:30   22:00   22:30   23:00   23:30   0:00
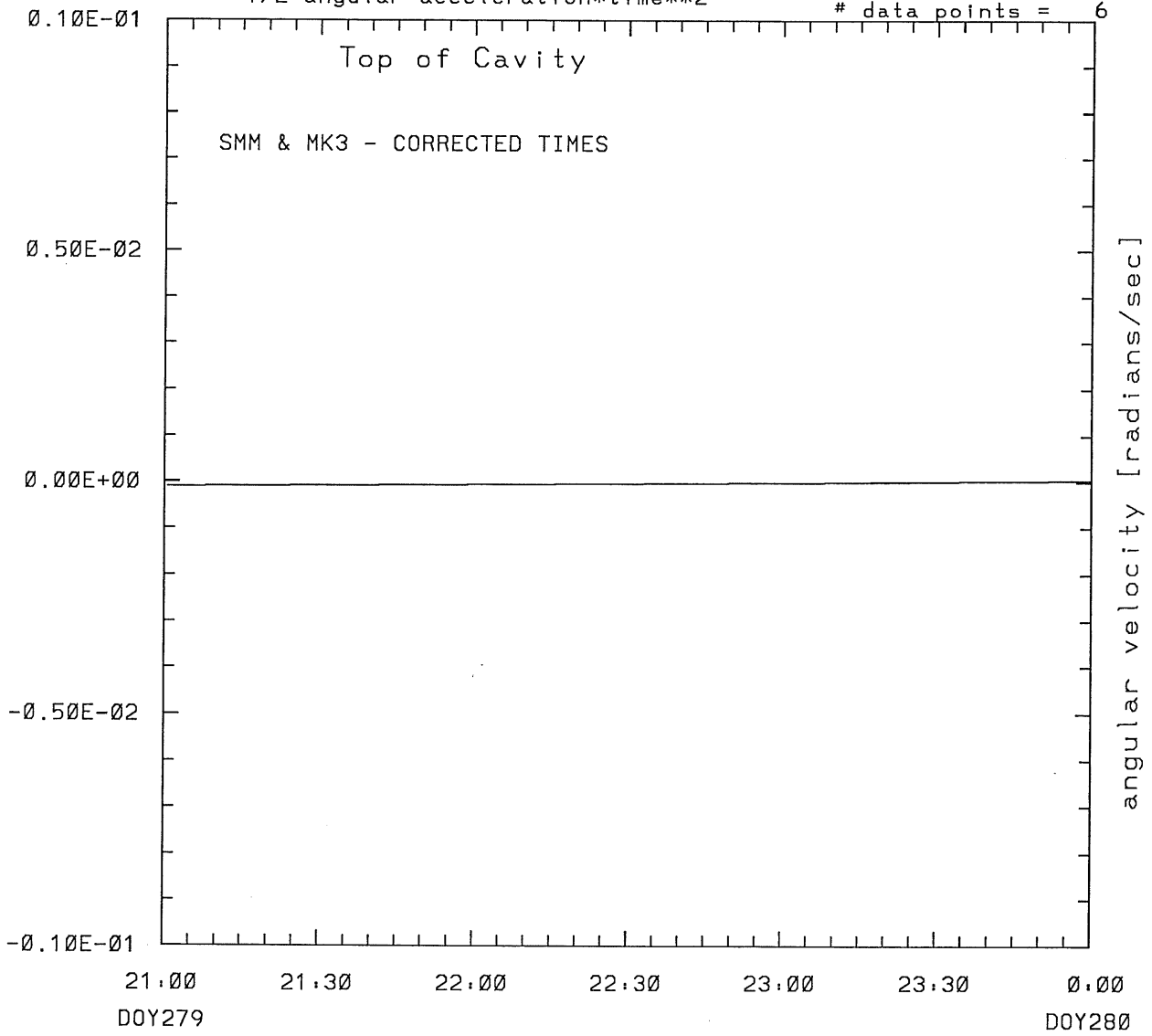DOY279   DOY280

tstart=DOY279 20:25   from derivative=0
Event begins at   1.54 Solar Radii
radial acceleration=0.302E-01 km/sec**2

SMM C/P   1988 DOY279   124 +/- 11 degrees

angle= initial angle + angular velocity*time +
1/2 angular acceleration*time**2

data points =   6

Top of Cavity

SMM & MK3 - CORRECTED TIMES

0.10E-01

0.50E-02

0.00E+00

-0.50E-02

-0.10E-01

angular velocity [radians/sec]

21:00   21:30   22:00   22:30   23:00   23:30   0:00

DOY279   DOY280

angular acceleration=0.127E-07 +/-
0.664E-08 [rad/sec**2]

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

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

                                  error in        error in
year doy      time     radii  radius      angle   angle   datatype
1988 279   21:26:30    1.85 +/- 0.10    135.0 +/-  0.5     SMM
1988 279   21:51:18    2.10 +/- 0.15    131.7 +/-  0.5     SMM
1988 279   21:59:32    2.18 +/- 0.15    125.0 +/-  0.5     SMM
1988 279   23: 0:25    3.59 +/- 0.20    118.8 +/-  1.0     SMM
1988 279   23:25:13    4.02 +/- 0.15    120.0 +/-  1.0     SMM
1988 279   23:33:27    4.33 +/- 0.25    118.4 +/-  1.0     SMM


*******************************************
 Structure being measured:
Top of Cavity
*******************************************

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

START TIME:

 Event began at t = 0 + -0.124E+02 +/-  0.516E+00 [minutes]
 In more convenient units:
 Event began at DOY 279 20:48 +/-  0.516E+00 [minutes]

 Origin defined at DOY279 21: 0

RADIAL INFORMATION:

RADIAL VELOCITY =   222. +/-    13. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

  c(1) =    0.124E+01 +/-    0.952E-01 [solar radii]
  c(2) =    0.192E-01 +/-    0.111E-02 [radii/min]
  c(2) =    0.222E+03 +/-    0.129E+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)= 0.13114E+00 [radii] see Bevington pg. 114
                error in c(2)= 0.12502E-02 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.3875E-04 +/-   0.8304E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

  a(1) = 137. +/-    2. [degrees]
  a(2) =   -0.133E+00 +/-    0.285E-01 [degrees/min]
  a(2) =   -0.388E-04 +/-    0.830E-05 [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 RADIAL velocity at 21:26 =  222. km/sec

The RADIAL velocity at 21:51 =  222. km/sec
```

The RADIAL velocity at 21:59 = 222. km/sec

The RADIAL velocity at 23: 0 = 222. km/sec

The RADIAL velocity at 23:25 = 222. km/sec

The RADIAL velocity at 23:33 = 222. km/sec


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

Fit is ok [ier=1]

Standard Deviation in the height = 1.09
Standard Deviation in start time measurement =   0.490E+02
Error in time =   0.15670E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.171E-01
Reduced Chi Squared = 0.766E-01
Chi Squared = 0.306E+00
The probability for exceeding chi square = 0.999E+00

The correlation coefficient =   0.994E+00
The probability that no LINEAR correlation exists between the variables =   0.5811]
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
 1988 279  21:26:30  1.85 +/- 0.10    135.0 +/-  0.5       SMM
 1988 279  21:51:18  2.10 +/- 0.15    131.7 +/-  0.5       SMM
 1988 279  21:59:32  2.18 +/- 0.15    125.0 +/-  0.5       SMM
 1988 279  23: 0:25  3.59 +/- 0.20    118.8 +/-  1.0       SMM
 1988 279  23:25:13  4.02 +/- 0.15    120.0 +/-  1.0       SMM
 1988 279  23:33:27  4.33 +/- 0.25    118.4 +/-  1.0       SMM


*******************************************
 Structure being measured:
Top of Cavity
*******************************************

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


START TIME:

 tstart=DOY279 20:25 from derivative = 0
Event begins at   1.54 Solar Radii
 Origin defined at DOY279 21: 0

RADIAL INFORMATION:

RADIAL ACCELERATION =  0.302E-01 +/-  0.888E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =     0.163E+01 +/-     0.128E+00 [solar radii]
 c(2) =     0.551E-02 +/-     0.406E-02 [radii/min]
 c(2) =     0.639E+02 +/-     0.472E+02 [km/sec]
 c(3) =     0.781E-04 +/-     0.230E-04 [radii/min**2]
 c(3) =     0.302E-01 +/-     0.888E-02 [km/sec**2]


The computed ERRORS in coefficients [BEVINGTON] are:

     Approximate error in c(1) =  0.22177E+00 [radii] Bevington pg 154 (8-30)
           Exact error in c(1) =  0.29011E-01 [radii] Bevington pg 154 (8-28)
     Approximate error in c(2) =  0.61248E-02 [radii/min] Bevington pg 154 (8-30)
           Exact error in c(2) =  0.95991E-03 [radii/min] Bevington pg 154 (8-28)
     Approximate error in c(3) =  0.32783E-04 [radii/min**2] Bevington pg 154 (8-30)
           Exact error in c(3) =  0.51254E-05 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION=  0.1269E-07 +/-   0.6645E-08[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 144. +/-   4. [degrees]
 a(2) =   -0.366E+00 +/-    0.124E+00 [degrees/min]
 a(2) =   -0.106E-03 +/-    0.360E-04 [rad/sec]
 a(3) =    0.131E-02 +/-    0.685E-03 [degrees/min**2]
 a(3) =    0.127E-07 +/-    0.664E-08 [rad/sec**2]

The RADIAL velocity at 21:26 =  112. km/sec
```

The RADIAL velocity at 21:51 = 157. km/sec

The RADIAL velocity at 21:59 = 172. km/sec

The RADIAL velocity at 23: 0 = 282. km/sec

The RADIAL velocity at 23:25 = 327. km/sec

The RADIAL velocity at 23:33 = 342. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 1.09
Standard Deviation in start time measurement =   0.490E+02
Value of reduced Chi Squared returned from nllst2 = 0.550E-02
Reduced Chi Squared = 0.450E-01
Chi Squared = 0.135E+00
The probability for exceeding chi square = 0.999E+00

For a second order fit 3 correlation coefficients are given:
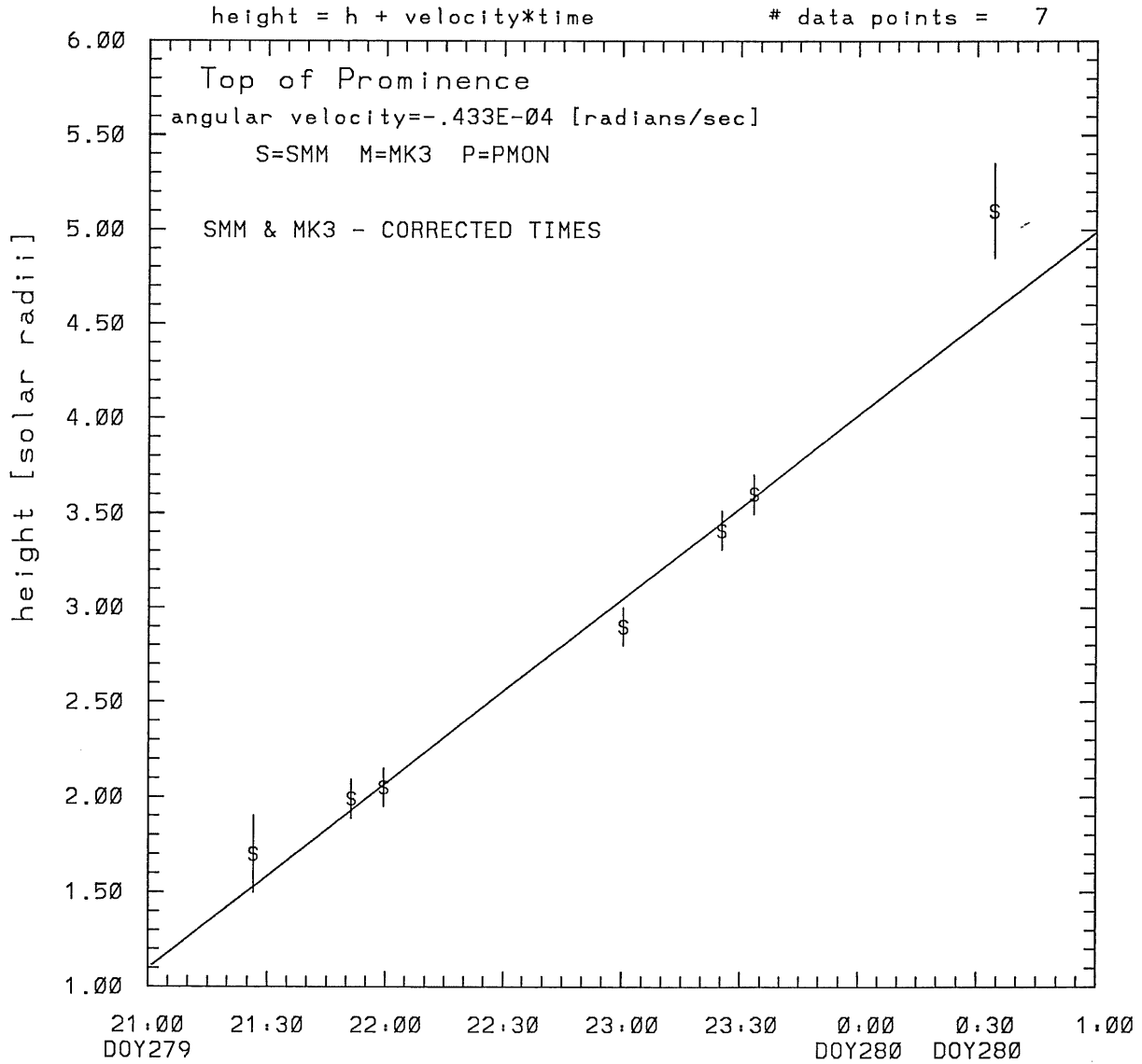 (Using equation of motion: r = a + bt + at**2)
The correlation between the data and the term linear in time =   0.1070E+01
The correlation between the data and the time**2 term =   0.1009E+01
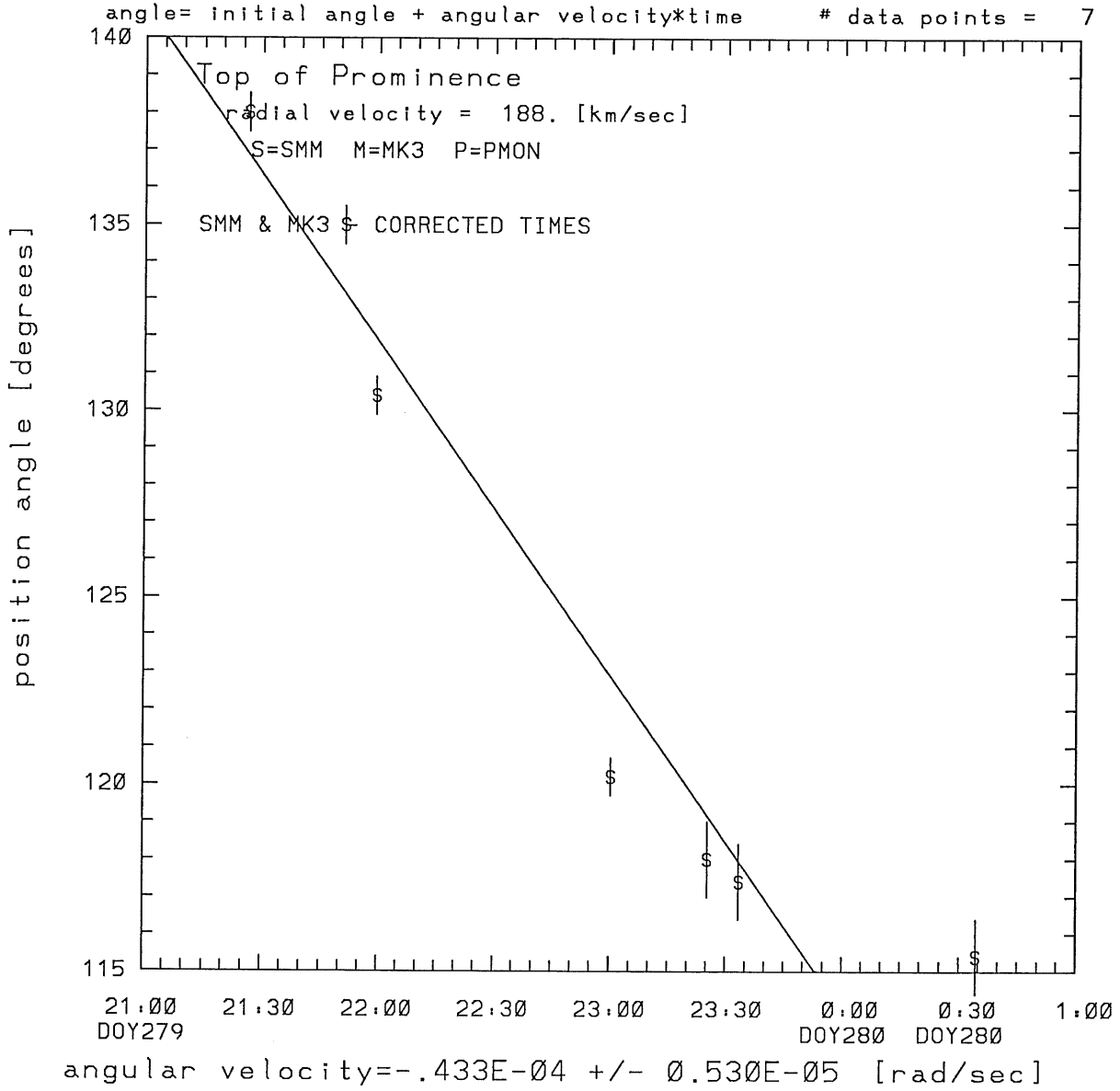The correlation between the data and the complete equation of motion=0.9925E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

SMM C/P   1988 DOY279   124 +/- 14 degrees

height = h + velocity*time   # data points =   7

Top of Prominence

angular velocity=-.433E-04 [radians/sec]

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

21:00   21:30   22:00   22:30   23:00   23:30   0:00   0:30   1:00
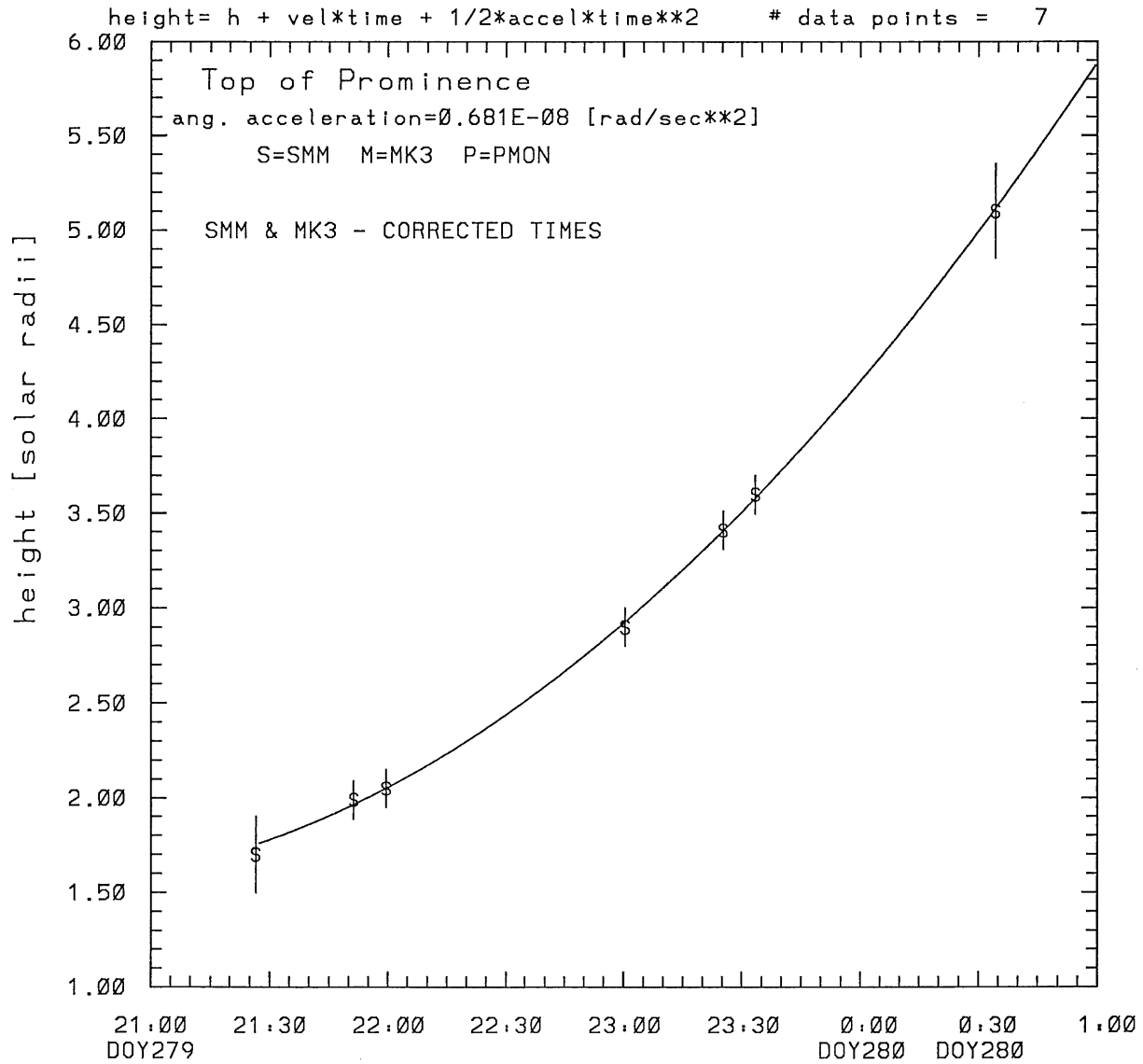DOY279   DOY280 DOY280

tstart=DOY279 20:54 +/-   0.1 [min.]
radial velocity=   188. +/-   12. [km/sec]

SMM C/P 1988 DOY279 124 +/- 14 degrees

angle= initial angle + angular velocity*time   # data points =   7

Top of Prominence
   radial velocity = 188. [km/sec]
      S=SMM   M=MK3   P=PMON

SMM & MK3 $ CORRECTED TIMES

position angle [degrees]

angular velocity=-.433E-04 +/- 0.530E-05 [rad/sec]

SMM C/P 1988 DOY279 124 +/- 14 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   7

Top of Prominence
ang. acceleration=0.681E-08 [rad/sec**2]
       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

21:00   21:30   22:00   22:30   23:00   23:30   0:00   0:30   1:00
DOY279   DOY280 DOY280
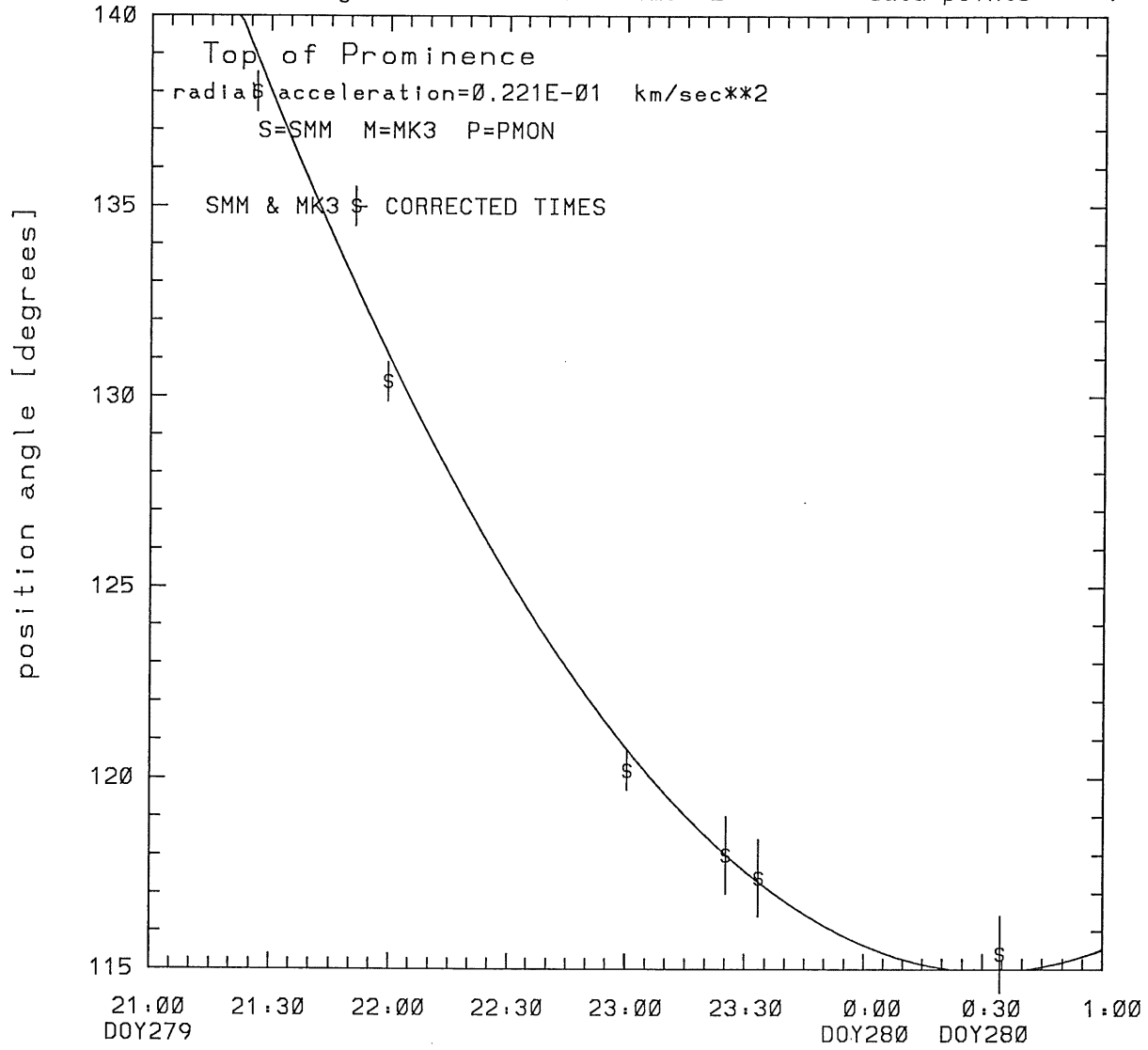
tstart=DOY279 20:25   from derivative=0
Event begins at   1.53 Solar Radii
radial acceleration= 0.0221 +/- 0.0018 [km/sec**2]

SMM C/P 1988 DOY279 124 +/- 14 degrees

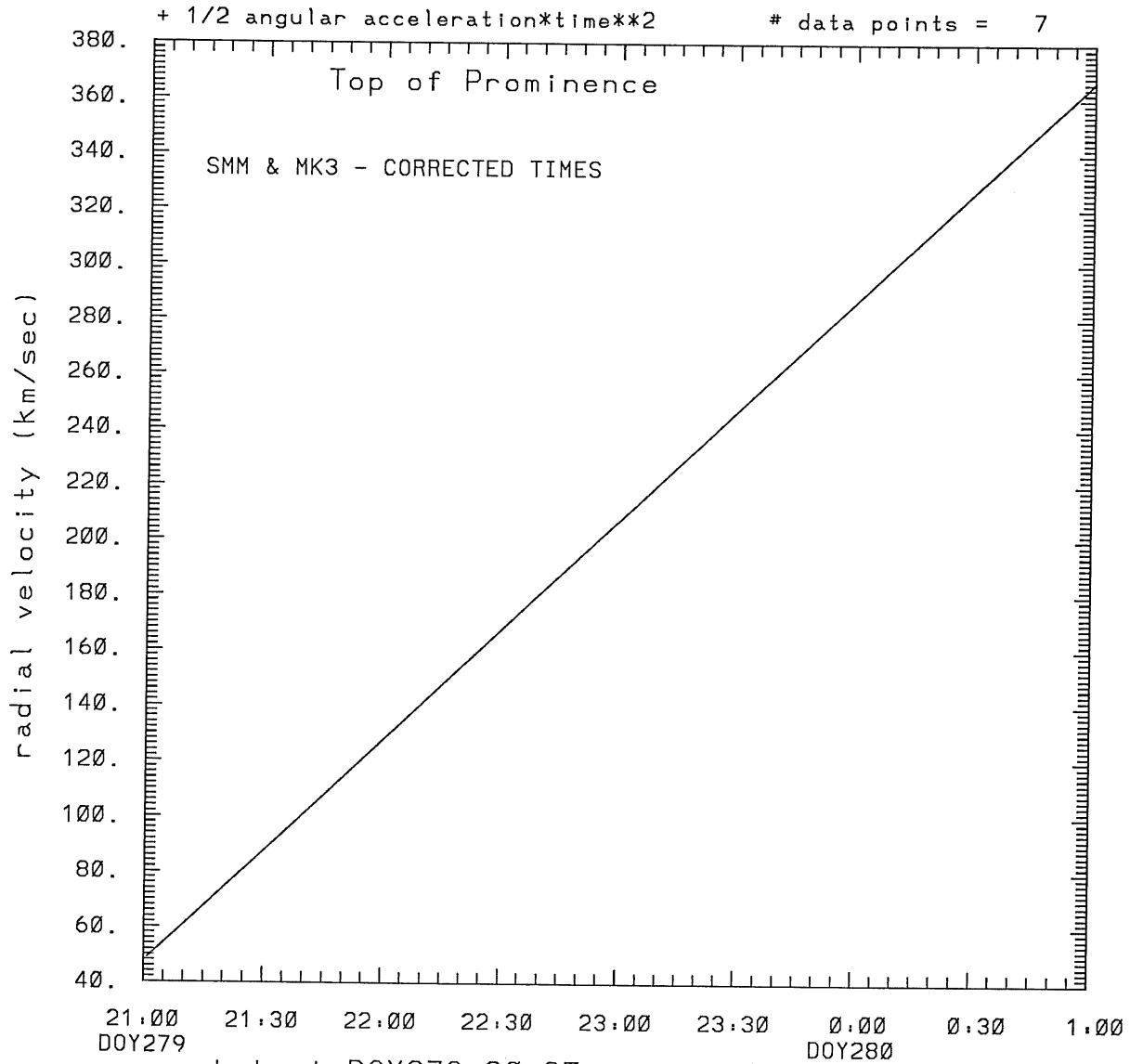angle= initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2   # data points =   7

Top of Prominence
radial acceleration=0.221E-01 km/sec**2
S=SMM   M=MK3   P=PMON

SMM & MK3 $ CORRECTED TIMES

position angle [degrees]

140

135

130

125

120

115

21:00   21:30   22:00   22:30   23:00   23:30   0:00   0:30   1:00
DOY279   DOY280 DOY280

Event begins at   1.53 Solar Radii
angular acceleration=0.681E-08 +/-0.171E-08 [rad/sec**2]

SMM C/P 1988 DOY279 124 +/- 14 degrees

+ 1/2 angular acceleration*time**2   # data points =   7

Top of Prominence

SMM & MK3 - CORRECTED TIMES

radial velocity (km/sec)

380.
360.
340.
320.
300.
280.
260.
240.
220.
200.
180.
160.
140.
120.
100.
80.
60.
40.

21:00   21:30   22:00   22:30   23:00   23:30   0:00   0:30   1:00
DOY279   DOY280
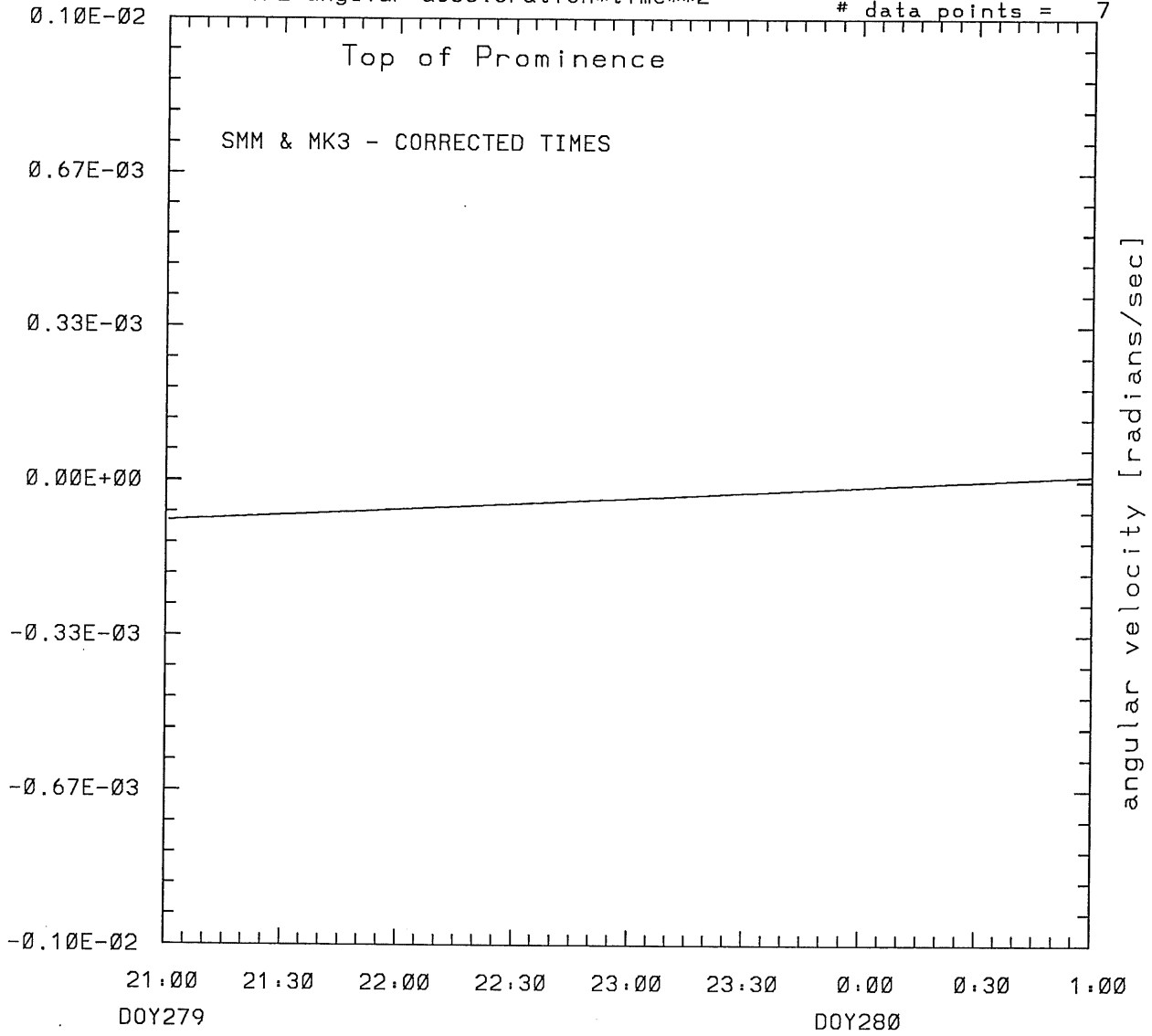
tstart=DOY279 20:25   from derivative=0
Event begins at   1.53 Solar Radii
radial acceleration=0.221E-01 km/sec**2

SMM C/P 1988 DOY279 124 +/- 14 degrees

angle= initial angle + angular velocity*time +
1/2 angular acceleration*time**2   # data points =   7

Top of Prominence

SMM & MK3 - CORRECTED TIMES

0.10E-02

0.67E-03

0.33E-03

0.00E+00

-0.33E-03

-0.67E-03

-0.10E-02

angular velocity [radians/sec]

21:00   21:30   22:00   22:30   23:00   23:30   0:00   0:30   1:00
DOY279   DOY280

angular acceleration=0.681E-08 +/-
0.171E-08 [rad/sec**2]

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


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


                                 error in          error in
year doy      time      radii  radius      angle     angle    datatype
1988 279   21:26:30   1.70 +/- 0.20    138.0 +/-  0.5      SMM
1988 279   21:51:18   1.99 +/- 0.10    135.0 +/-  0.5      SMM
1988 279   21:59:32   2.05 +/- 0.10    130.4 +/-  0.5      SMM
1988 279   23: 0:25   2.90 +/- 0.10    120.2 +/-  0.5      SMM
1988 279   23:25:13   3.41 +/- 0.10    118.0 +/-  1.0      SMM
1988 279   23:33:27   3.60 +/- 0.10    117.4 +/-  1.0      SMM
1988 280    0:34:20   5.10 +/- 0.25    115.4 +/-  1.0      SMM


*******************************************
 Structure being measured:
Top of Prominence
*******************************************


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


START TIME:

 Event began at t = 0 + -0.607E+01 +/-  0.653E-01 [minutes]
 In more convenient units:
 Event began at DOY 279 20:54 +/-  0.653E-01 [minutes]

 Origin defined at DOY279 21: 0

RADIAL INFORMATION:

RADIAL VELOCITY =    188. +/-    12. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =    0.110E+01 +/-    0.120E+00 [solar radii]
 c(2) =    0.162E-01 +/-    0.103E-02 [radii/min]
 c(2) =    0.188E+03 +/-    0.119E+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)=  0.19965E+00 [radii] see Bevington pg. 114
               error in c(2)=  0.15787E-02 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.4334E-04 +/-    0.5301E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 141. +/-    2. [degrees]
 a(2) =    -0.149E+00 +/-    0.182E-01 [degrees/min]
 a(2) =    -0.433E-04 +/-    0.530E-05 [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 RADIAL velocity at 21:26 =   188. km/sec

The RADIAL velocity at 21:51 =   188. km/sec
```

The RADIAL velocity at 21:59 =   188. km/sec

The RADIAL velocity at 23: 0 =   188. km/sec

The RADIAL velocity at 23:25 =   188. km/sec

The RADIAL velocity at 23:33 =   188. km/sec

The RADIAL velocity at 0:34 =   188. km/sec


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

Fit is ok [ier=1]

Standard Deviation in the height = 1.19
Standard Deviation in start time measurement =   0.622E+02
Error in time =   0.35858E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.173E-01
Reduced Chi Squared = 0.419E+00
Chi Squared = 0.210E+01
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 =   0.4717)
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
1988 279  21:26:30   1.70 +/- 0.20    138.0 +/-  0.5      SMM
1988 279  21:51:18   1.99 +/- 0.10    135.0 +/-  0.5      SMM
1988 279  21:59:32   2.05 +/- 0.10    130.4 +/-  0.5      SMM
1988 279  23: 0:25   2.90 +/- 0.10    120.2 +/-  0.5      SMM
1988 279  23:25:13   3.41 +/- 0.10    118.0 +/-  1.0      SMM
1988 279  23:33:27   3.60 +/- 0.10    117.4 +/-  1.0      SMM
1988 280   0:34:20   5.10 +/- 0.25    115.4 +/-  1.0      SMM


*******************************************
 Structure being measured:
Top of Prominence
*******************************************

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

START TIME:

 tstart=DOY279 20:25 from derivative = 0
Event begins at   1.53 Solar Radii
 Origin defined at DOY279 21: 0

RADIAL INFORMATION:

RADIAL ACCELERATION =  0.221E-01 +/-  0.177E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =     0.160E+01 +/-     0.465E-01 [solar radii]
 c(2) =     0.411E-02 +/-     0.987E-03 [radii/min]
 c(2) =     0.477E+02 +/-     0.115E+02 [km/sec]
 c(3) =     0.572E-04 +/-     0.458E-05 [radii/min**2]
 c(3) =     0.221E-01 +/-     0.177E-02 [km/sec**2]


 The computed ERRORS in coefficients [BEVINGTON] are:

     Approximate error in c(1) =  0.45291E-01 [radii] Bevington pg 154 (8-30)
          Exact error in c(1) =  0.63904E-02 [radii] Bevington pg 154 (8-28)
     Approximate error in c(2) =  0.91240E-03 [radii/min] Bevington pg 154 (8-30)
          Exact error in c(2) =  0.14704E-03 [radii/min] Bevington pg 154 (8-28)
     Approximate error in c(3) =  0.38150E-05 [radii/min**2] Bevington pg 154 (8-30)
          Exact error in c(3) =  0.69459E-06 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION=  0.6807E-08 +/-   0.1710E-08[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 146. +/-    2. [degrees]
 a(2) =   -0.297E+00 +/-     0.384E-01 [degrees/min]
 a(2) =   -0.863E-04 +/-     0.112E-04 [rad/sec]
 a(3) =    0.702E-03 +/-     0.176E-03 [degrees/min**2]
 a(3) =    0.681E-08 +/-     0.171E-08 [rad/sec**2]
```

The RADIAL velocity at 21:26 =   83. km/sec

The RADIAL velocity at 21:51 =   116. km/sec

The RADIAL velocity at 21:59 =   127. km/sec

The RADIAL velocity at 23: 0 =   208. km/sec

The RADIAL velocity at 23:25 =   241. km/sec

The RADIAL velocity at 23:33 =   251. km/sec

The RADIAL velocity at 0:34 =   332. km/sec

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

 Fit is ok [ier=1]

 Standard Deviation in the height = 1.19
 Standard Deviation in start time measurement =   0.622E+02
 Value of reduced Chi Squared returned from nllst2 = 0.644E-03
 Reduced Chi Squared = 0.266E-02
 Chi Squared = 0.106E-01
 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 =   0.7665E+00
 The correlation between the data and the time**2 term =   0.7182E+00
 The correlation between the data and the complete equation of motion=0.1001E+01
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]