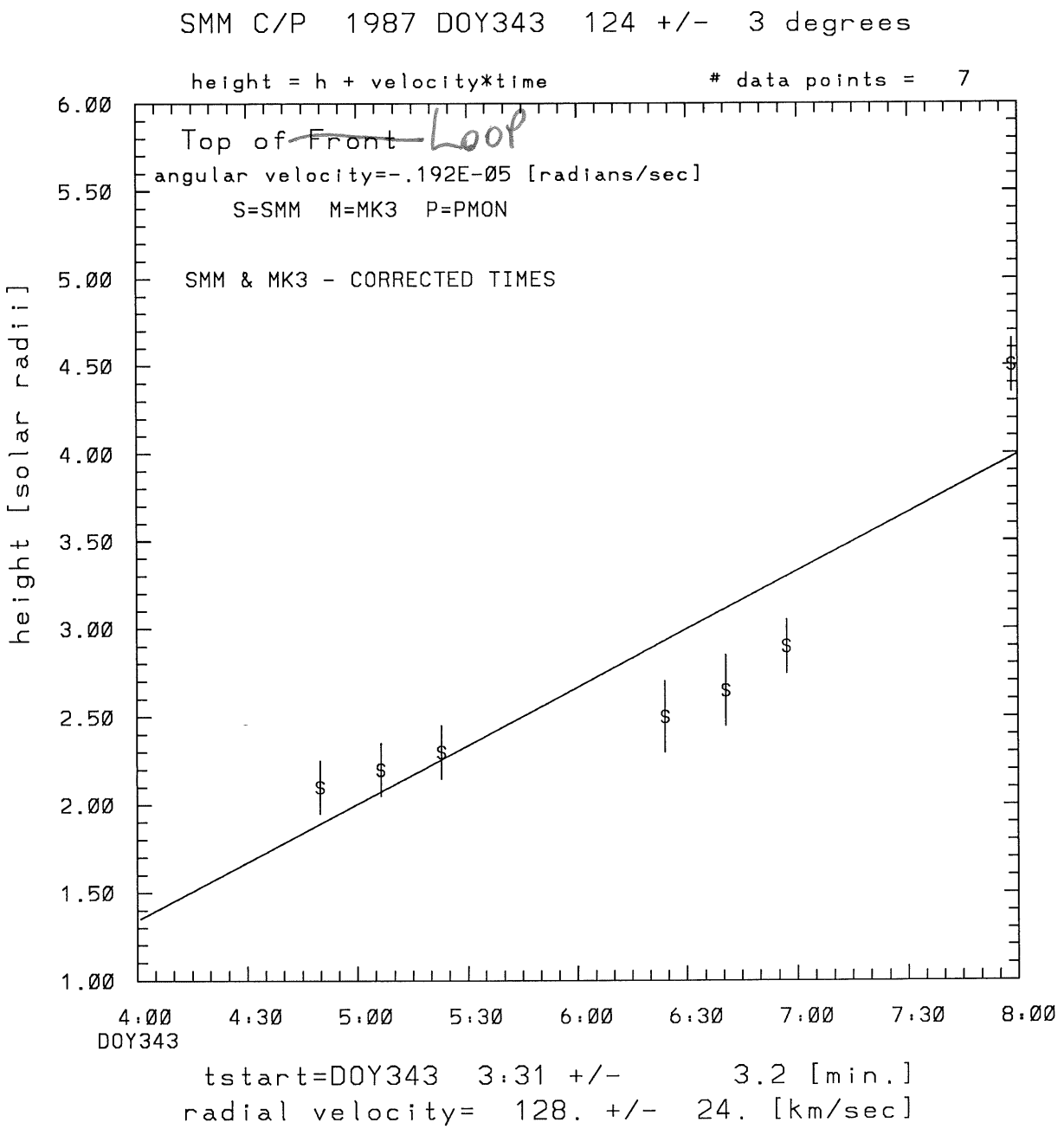
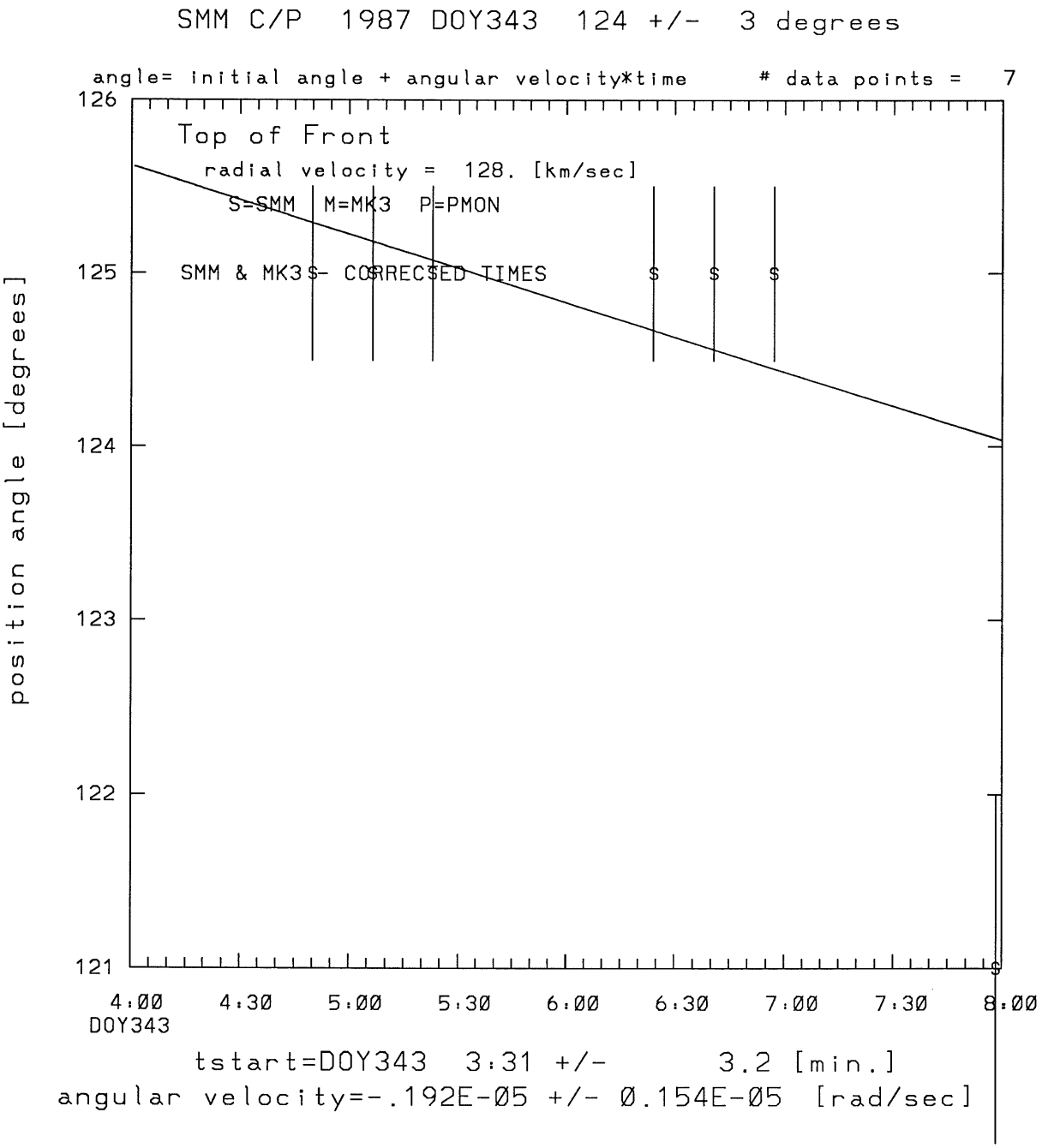
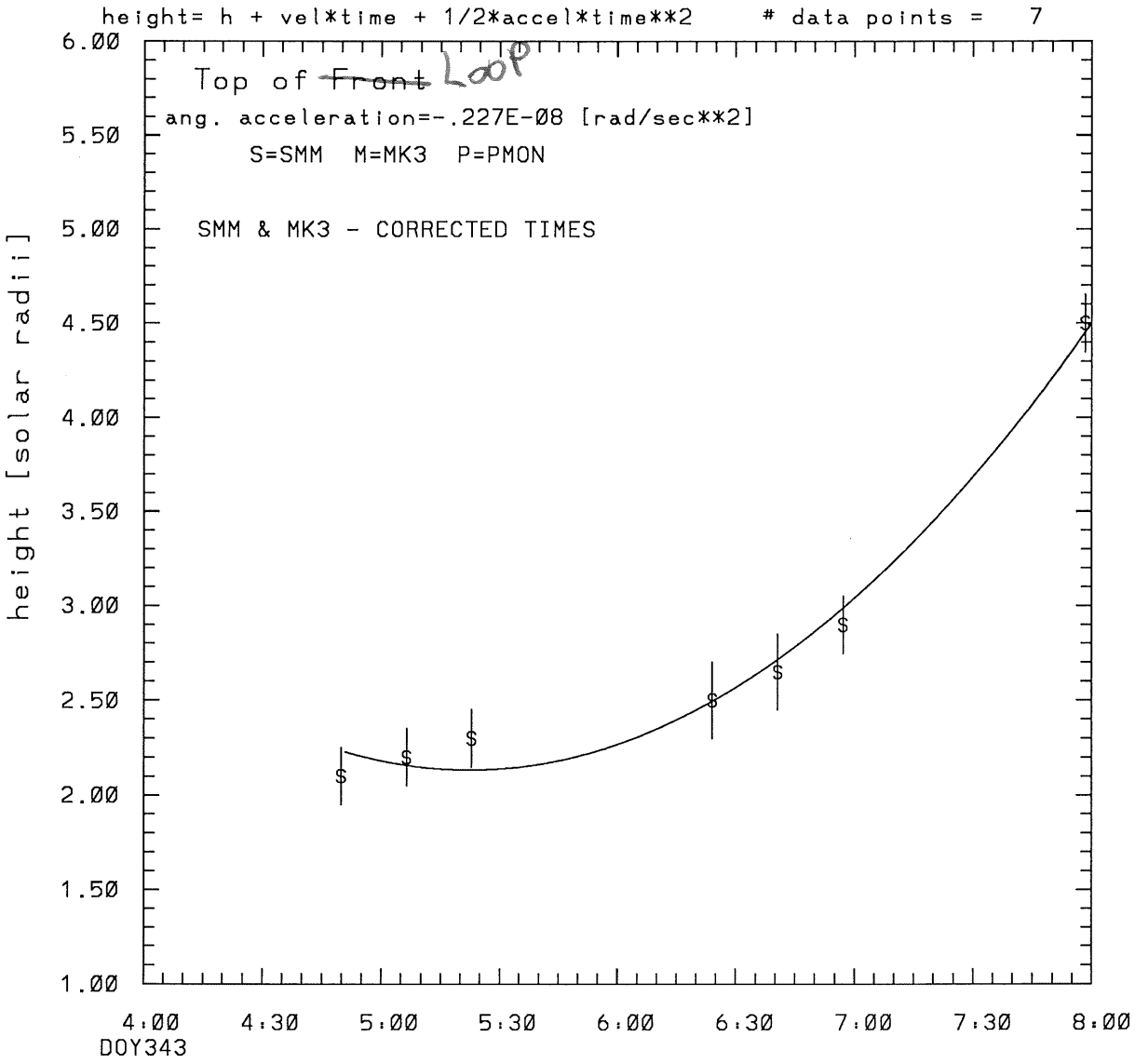

SMM C/P 1987 DOY343 124 +/- 3 degrees
height = h + velocity*time
# data points = 7
Top of ~~Front~~ Loop
angular velocity=-.192E-05 [radians/sec]
S=SMM M=MK3 P=PMON
SMM & MK3 - CORRECTED TIMES
height [solar radii]
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
4:00
DOY343
4:30
5:00
5:30
6:00
6:30
7:00
7:30
8:00
tstart=DOY343 3:31 +/- 3.2 [min.]
radial velocity= 128. +/- 24. [km/sec]


SMM C/P 1987 DOY343 124 +/- 3 degrees
angle= initial angle + angular velocity*time
# data points = 7
Top of Front
radial velocity = 128. [km/sec]
S=SMM M=MK3 P=PMON
SMM & MK3 $- CORRECTED TIMES
position angle [degrees]
126
125
124
123
122
121
4:00
4:30
5:00
5:30
6:00
6:30
7:00
7:30
8:00
DOY343
tstart=DOY343 3:31 +/- 3.2 [min.]
angular velocity=-.192E-05 +/- 0.154E-05 [rad/sec]

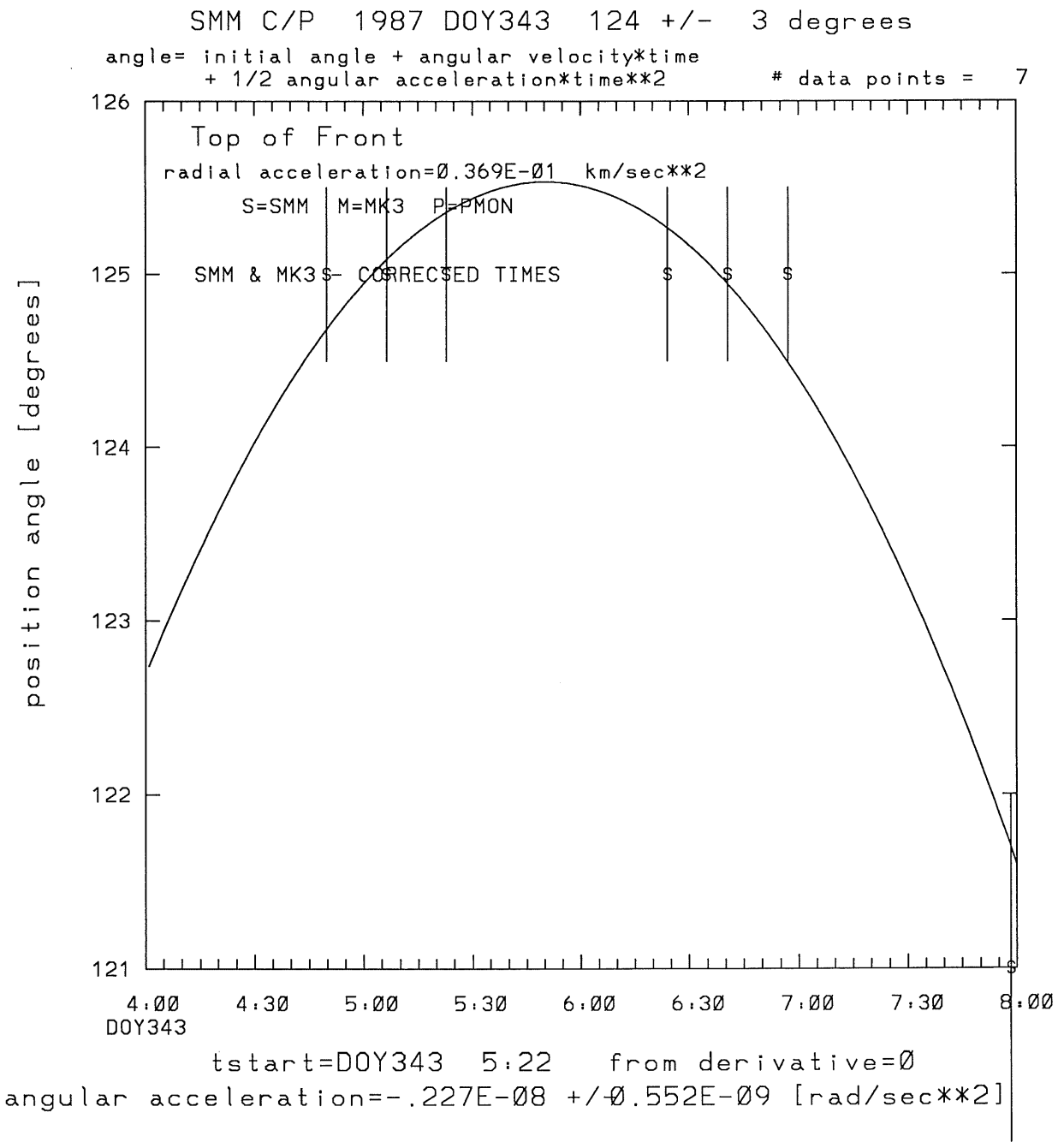
SMM C/P 1987 DOY343 124 +/- 3 degrees



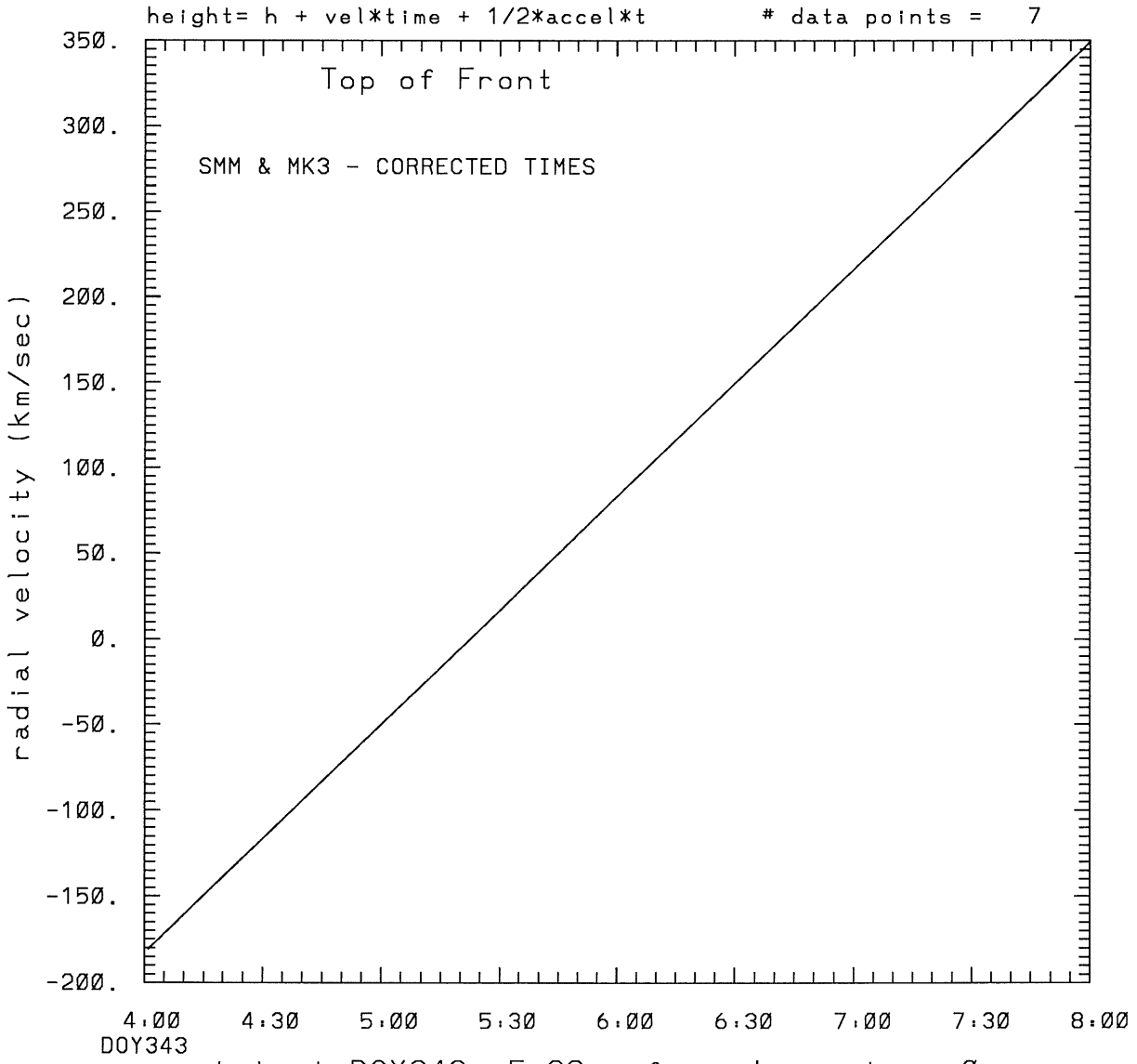
tstart=DOY343 5:22 from derivative=0

Event begins at 2.13 Solar Radii

radial acceleration= 0.0369 +/- 0.0050 [km/sec**2]


SMM C/P 1987 DOY343 124 +/- 3 degrees
angle= initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2
# data points = 7
Top of Front
radial acceleration=Ø.369E-Ø1 km/sec**2
S=SMM M=MK3 P=PMON
SMM & MK3 $- CORRECTED TIMES
position angle [degrees]
126
125
124
123
122
121
4:ØØ
4:3Ø
5:ØØ
5:3Ø
6:ØØ
6:3Ø
7:ØØ
7:3Ø
8:ØØ
DOY343
tstart=DOY343 5:22 from derivative=Ø
angular acceleration=-.227E-Ø8 +/-Ø.552E-Ø9 [rad/sec**2]

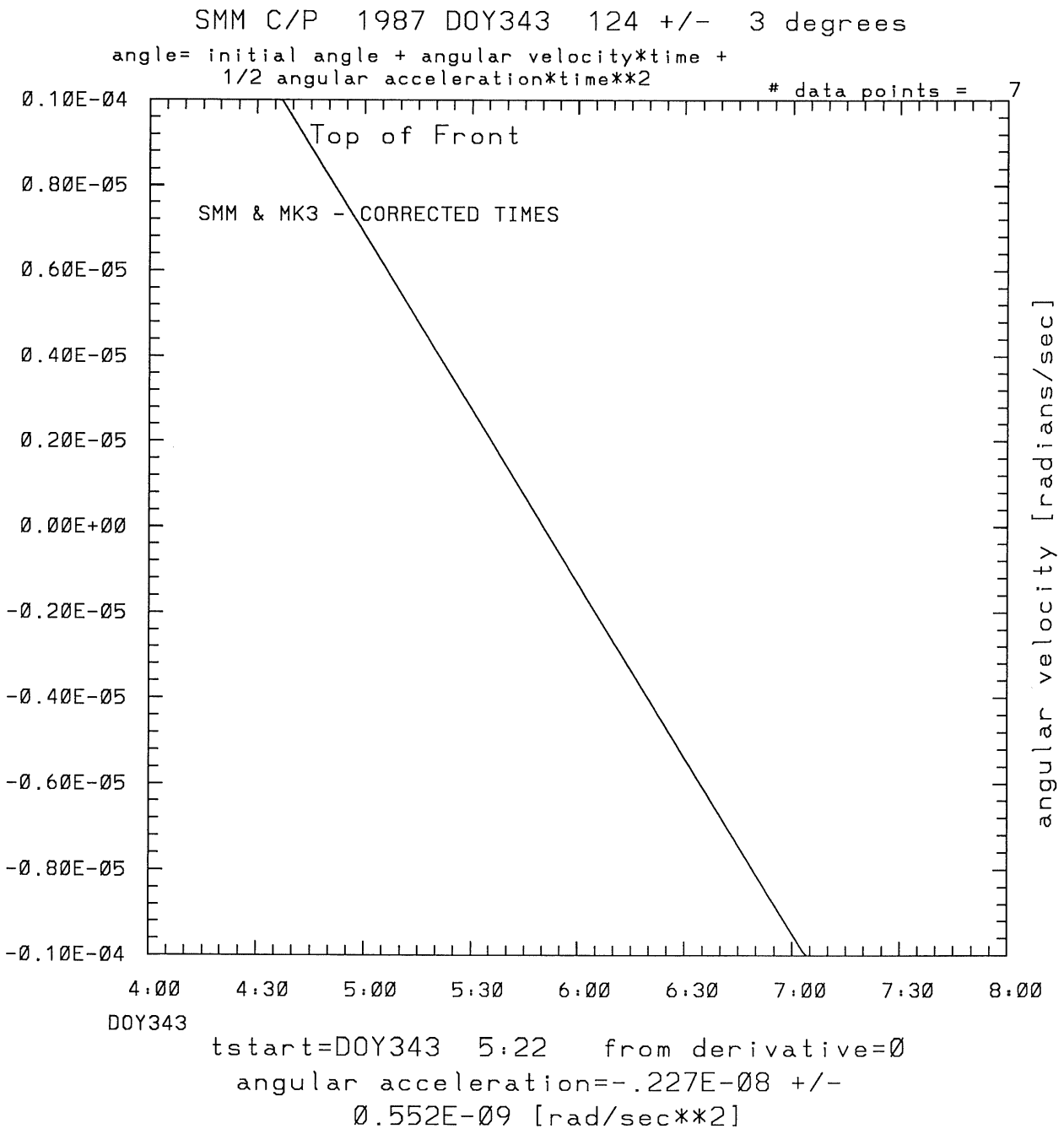
SMM C/P 1987 DOY343 124 +/- 3 degrees



tstart=DOY343 5:22 from derivative=0

Event begins at 2.13 Solar Radii

radial acceleration=0.369E-01 km/sec**2



tstart=DOY343 5:22 from derivative=0

angular acceleration=-.227E-08 +/-

0.552E-09 [rad/sec**2]

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

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

                                   error in          error in
year doy    time      radii   radius      angle    angle    datatype
1987 343   4:49:53   2.10 +/- 0.15     125.0 +/-  0.5        SMM
1987 343   5: 6:23   2.20 +/- 0.15     125.0 +/-  0.5        SMM
1987 343   5:22:53   2.30 +/- 0.15     125.0 +/-  0.5        SMM
1987 343   6:24: 7   2.50 +/- 0.20     125.0 +/-  0.5        SMM
1987 343   6:40:37   2.65 +/- 0.20     125.0 +/-  0.5        SMM
1987 343   6:57: 8   2.90 +/- 0.15     125.0 +/-  0.5        SMM
1987 343   7:58:22   4.50 +/- 0.15     121.0 +/-  1.0        SMM

****************************************
 Structure being measured:
Top of Loop
****************************************

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

START TIME:

 Event began at t = 0 + -0.308E+02 +/-  0.315E+01 [minutes]
 In more convenient units:
 Event began at DOY 343  3:31 +/-  0.315E+01 [minutes]

 Origin defined at DOY343  4: 0

RADIAL INFORMATION:

RADIAL VELOCITY =   128. +/-    24. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =    0.134E+01 +/-    0.304E+00 [solar radii]
 c(2) =    0.110E-01 +/-    0.210E-02 [radii/min]
 c(2) =    0.128E+03 +/-    0.244E+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)=  0.37075E+00 [radii] see Bevington pg. 114
                    error in c(2)=  0.25452E-02 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.1921E-05 +/-   0.1539E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 126. +/-   1. [degrees]
 a(2) =   -0.660E-02 +/-    0.529E-02 [degrees/min]
 a(2) =   -0.192E-05 +/-    0.154E-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  4:49 =  128. km/sec

The RADIAL velocity at  5: 6 =  128. km/sec
```

The RADIAL velocity at 5:22 = 128. km/sec

The RADIAL velocity at 6:24 = 128. km/sec

The RADIAL velocity at 6:40 = 128. km/sec

The RADIAL velocity at 6:57 = 128. km/sec

The RADIAL velocity at 7:58 = 128. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.82
Standard Deviation in start time measurement = 0.630E+02
Error in time = 0.85839E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.138E+00
Reduced Chi Squared = 0.959E+00
Chi Squared = 0.480E+01
The probability for exceeding chi square = 0.984E+00

The correlation coefficient = 0.886E+00
The probability that no LINEAR correlation exists between the variables = 0.7851
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
1987 343   4:49:53   2.10 +/- 0.15    125.0 +/-  0.5        SMM
1987 343   5: 6:23   2.20 +/- 0.15    125.0 +/-  0.5        SMM
1987 343   5:22:53   2.30 +/- 0.15    125.0 +/-  0.5        SMM
1987 343   6:24: 7   2.50 +/- 0.20    125.0 +/-  0.5        SMM
1987 343   6:40:37   2.65 +/- 0.20    125.0 +/-  0.5        SMM
1987 343   6:57: 8   2.90 +/- 0.15    125.0 +/-  0.5        SMM
1987 343   7:58:22   4.50 +/- 0.15    121.0 +/-  1.0        SMM

****************************************
 Structure being measured:
Top of Loop
****************************************

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

START TIME:

 tstart=DOY343  5:22 from derivative = 0
Event begins at   2.13 Solar Radii
 Origin defined at DOY343  4: 0

RADIAL INFORMATION:

RADIAL ACCELERATION =  0.369E-01 +/-  0.498E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =    0.278E+01 +/-    0.217E+00 [solar radii]
 c(2) =   -0.158E-01 +/-    0.368E-02 [radii/min]
 c(2) =   -0.183E+03 +/-    0.426E+02 [km/sec]
 c(3) =    0.955E-04 +/-    0.129E-04 [radii/min**2]
 c(3) =    0.369E-01 +/-    0.498E-02 [km/sec**2]

 The computed ERRORS in coefficients [BEVINGTON] are:

    Approximate error in c(1) =  0.23112E+00 [radii] Bevington pg 154 (8-30)
          Exact error in c(1) =  0.51549E-01 [radii] Bevington pg 154 (8-28)
    Approximate error in c(2) =  0.37831E-02 [radii/min] Bevington pg 154 (8-30)
          Exact error in c(2) =  0.63495E-03 [radii/min] Bevington pg 154 (8-28)
    Approximate error in c(3) =  0.13348E-04 [radii/min**2] Bevington pg 154 (8-30)
          Exact error in c(3) =  0.20539E-05 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= -0.2271E-08 +/-   0.5516E-09[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 123. +/-   1. [degrees]
 a(2) =    0.517E-01 +/-    0.144E-01 [degrees/min]
 a(2) =    0.150E-04 +/-    0.419E-05 [rad/sec]
 a(3) =   -0.234E-03 +/-    0.569E-04 [degrees/min**2]
 a(3) =   -0.227E-08 +/-    0.552E-09 [rad/sec**2]
```

The RADIAL velocity at 4:49 = -72. km/sec

The RADIAL velocity at 5: 6 = -36. km/sec

The RADIAL velocity at 5:22 = 1. km/sec

The RADIAL velocity at 6:24 = 137. km/sec

The RADIAL velocity at 6:40 = 173. km/sec

The RADIAL velocity at 6:57 = 210. km/sec

The RADIAL velocity at 7:58 = 345. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.82
Standard Deviation in start time measurement = 0.630E+02
Value of reduced Chi Squared returned from nllst2 = 0.138E-01
Reduced Chi Squared = 0.472E-01
Chi Squared = 0.189E+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 = 0.9585E+00
The correlation between the data and the time**2 term = 0.1028E+01
The correlation between the data and the complete equation of motion=0.9850E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]