SMM C/P 1989 DOY258 271 +/- 5 degrees

height = h + velocity*time   # data points = 5

Top of (Prominence) Core
angular velocity=0.309E-04 [radians/sec]
     S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

height [solar radii]
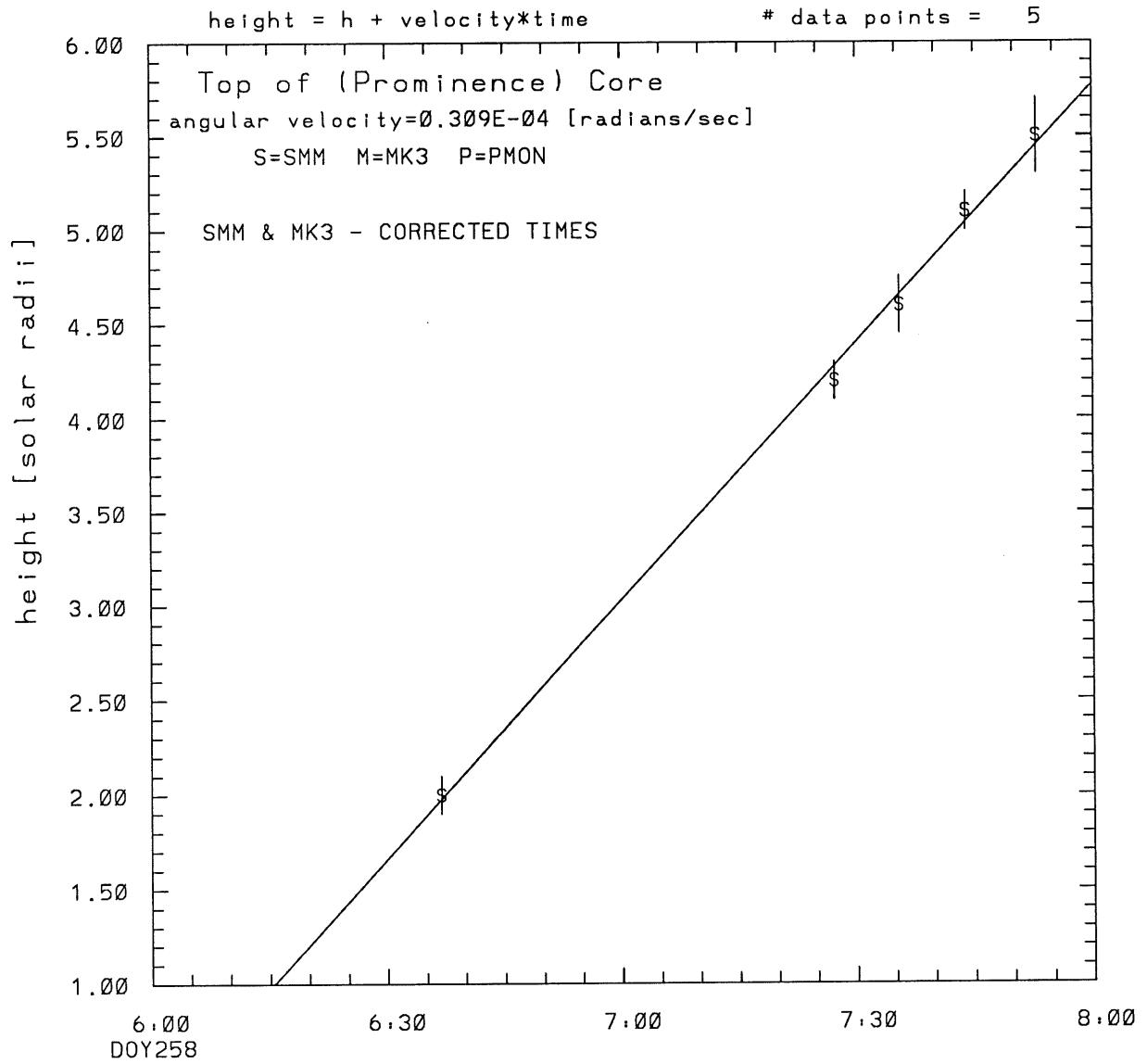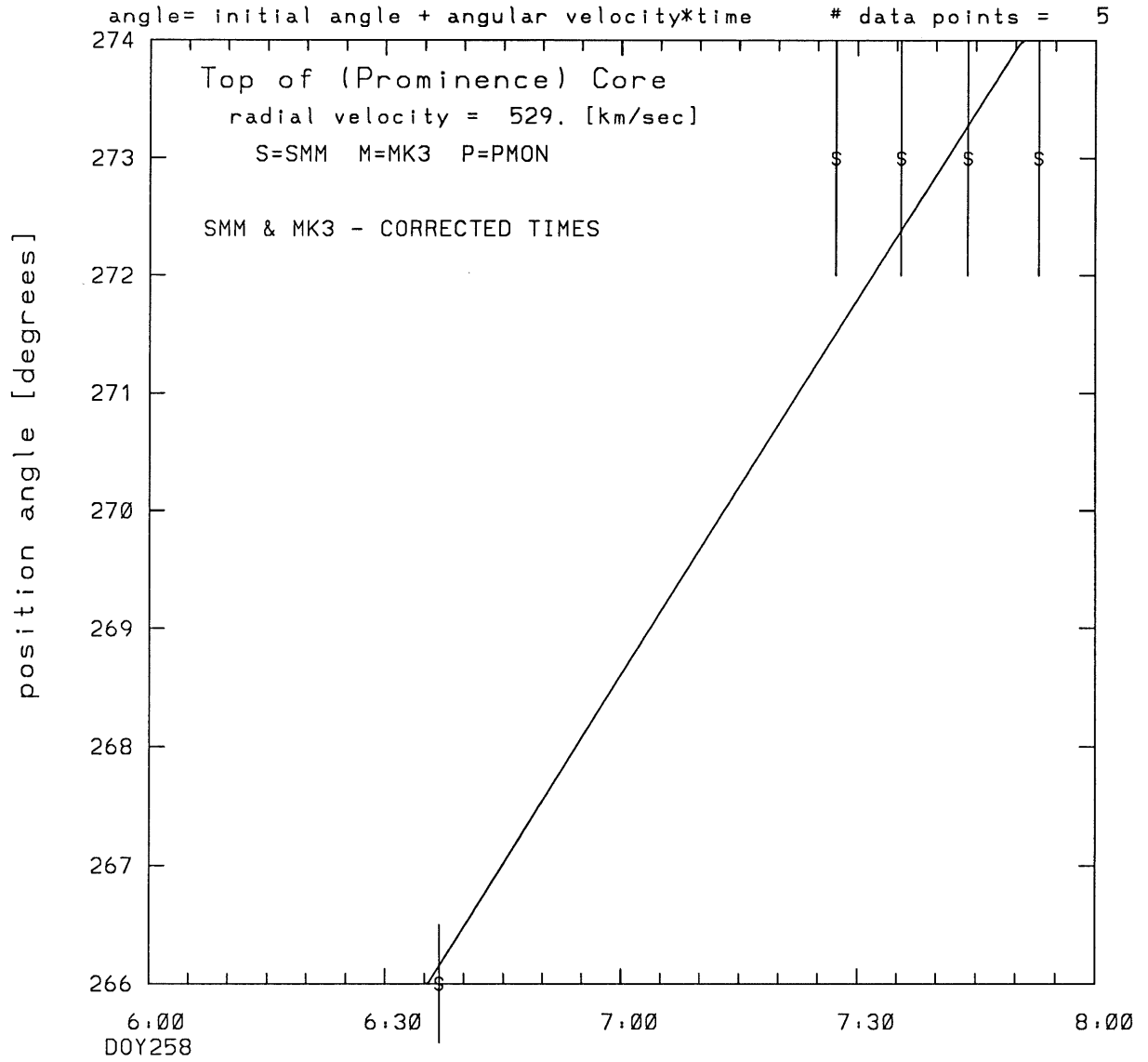
tstart=DOY258 6:15 +/-   1.2 [min.]
radial velocity= 529. +/- 12. [km/sec]

SMM C/P 1989 DOY258 271 +/- 5 degrees

angle= initial angle + angular velocity*time   # data points = 5

Top of (Prominence) Core
    radial velocity = 529. [km/sec]
    S=SMM M=MK3 P=PMON

SMM & MK3 - CORRECTED TIMES

position angle [degrees]

274
273
272
271
270
269
268
267
266

6:00   6:30   7:00   7:30   8:00
DOY258

tstart=DOY258 6:15 +/-   1.2 [min.]
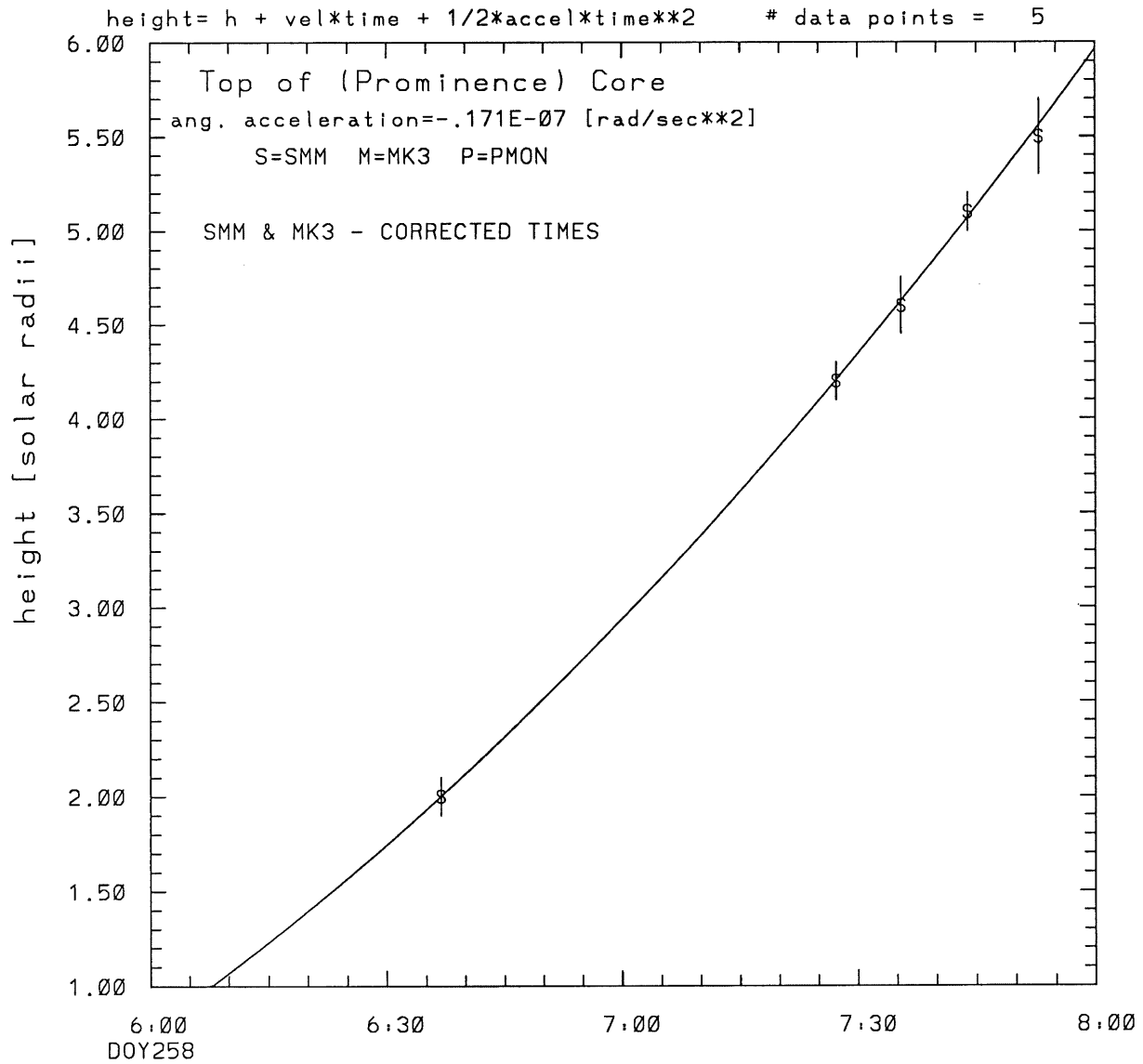angular velocity=0.309E-04 +/- 0.330E-05 [rad/sec]

SMM C/P 1989 DOY258 271 +/- 5 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   5

Top of (Prominence) Core
ang. acceleration=-.171E-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

6:00   6:30   7:00   7:30   8:00
DOY258
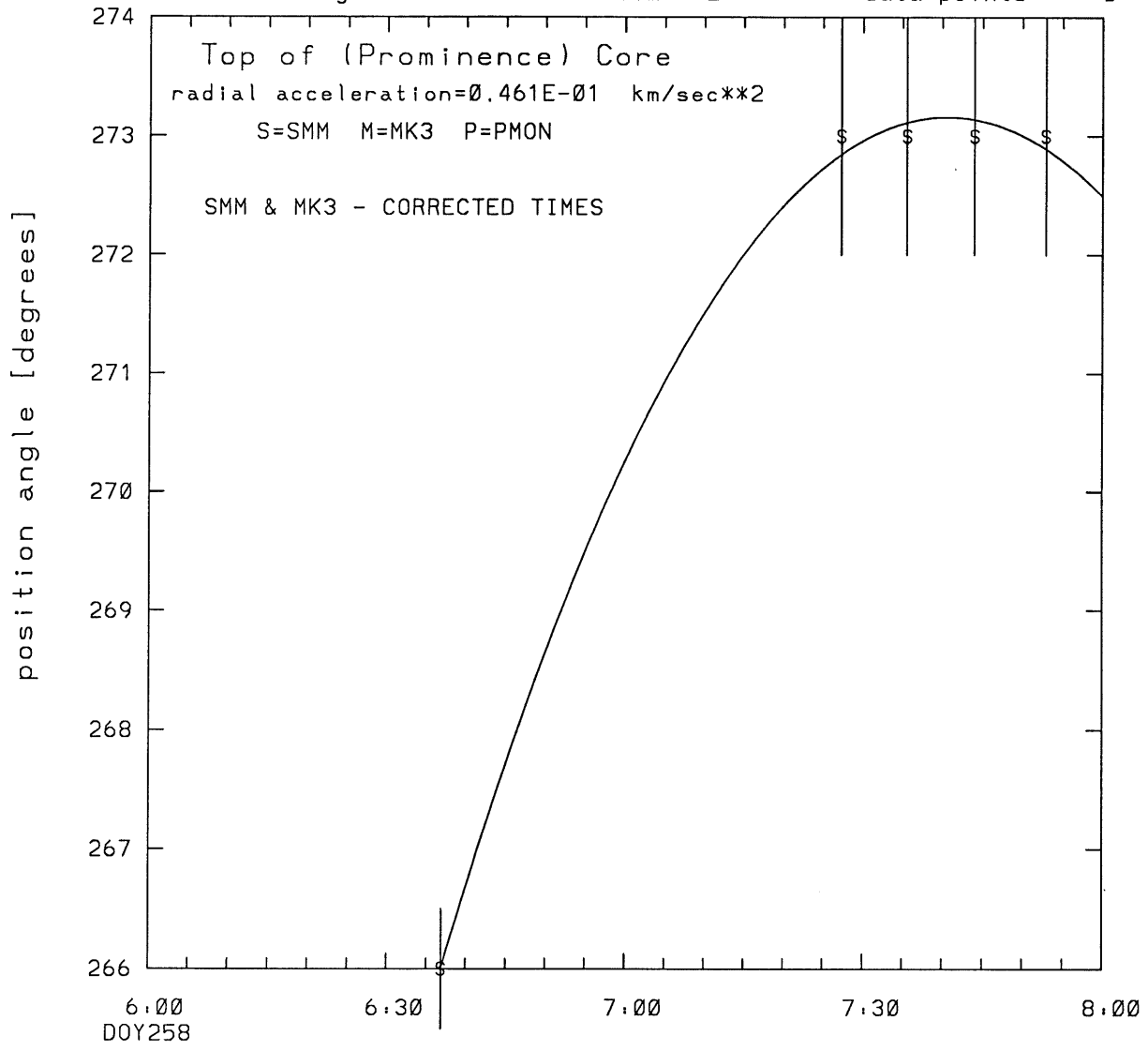
tstart=DOY258 6: 8 +/-   1.1 [min.]

radial acceleration= 0.0461 +/- 0.0122 [km/sec**2]

SMM C/P 1989 DOY258 271 +/- 5 degrees

angle= initial angle + angular velocity*time
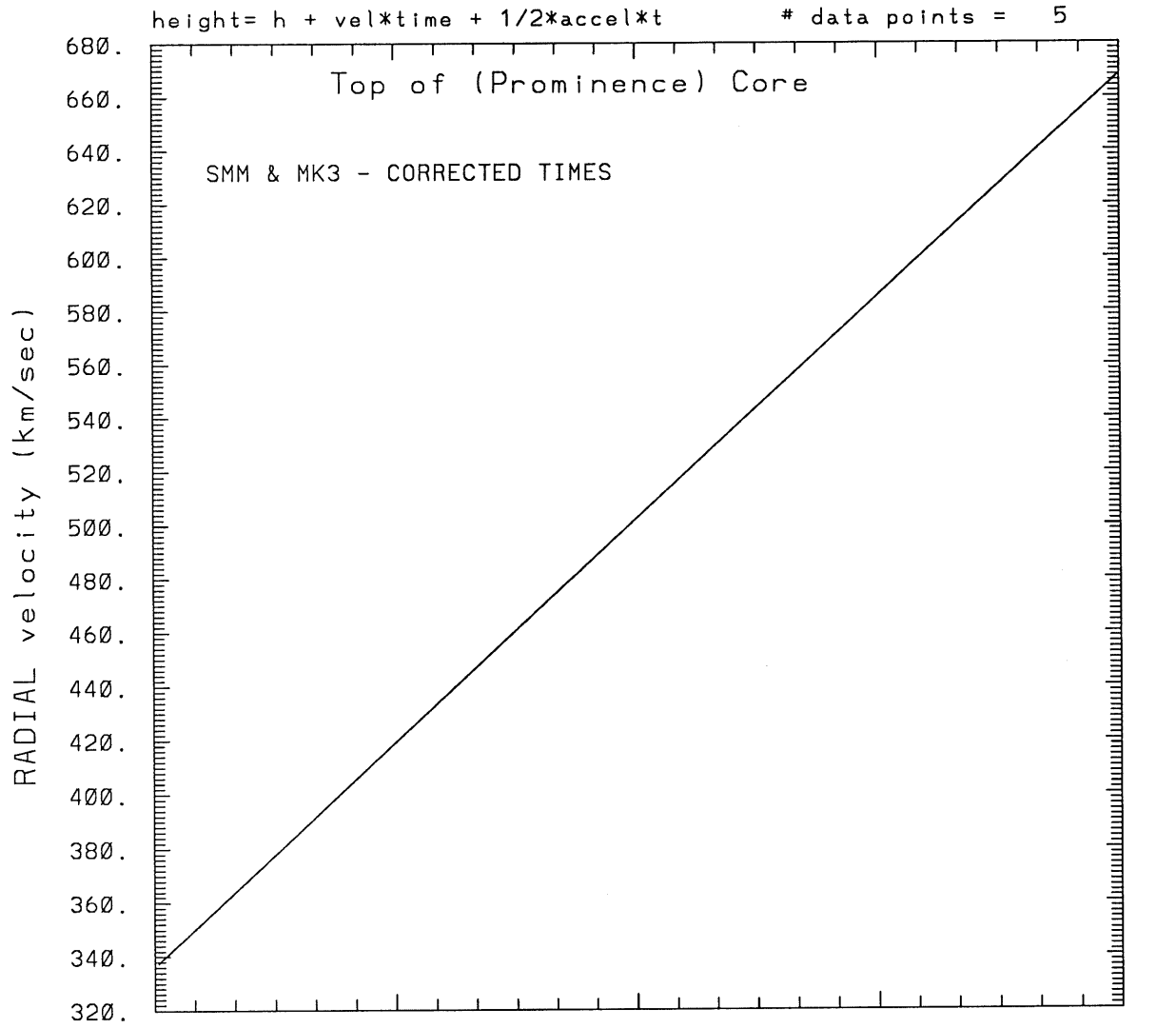   + 1/2 angular acceleration*time**2   # data points =   5

Top of (Prominence) Core
radial acceleration=0.461E-01 km/sec**2
     S=SMM   M=MK3 P=PMON

SMM & MK3 - CORRECTED TIMES

position angle [degrees]

274
273
272
271
270
269
268
267
266

6:00   6:30   7:00   7:30   8:00
DOY258

tstart=DOY258 6: 8 +/-   1.1 [min.]
angular acceleration=-.171E-07 +/-0.125E-08 [rad/sec**2]

SMM C/P 1989 DOY258 271 +/- 5 degrees

height= h + vel*time + 1/2*accel*t   # data points =   5

Top of (Prominence) Core

SMM & MK3 - CORRECTED TIMES

RADIAL velocity (km/sec)

680.
660.
640.
620.
600.
580.
560.
540.
520.
500.
480.
460.
440.
420.
400.
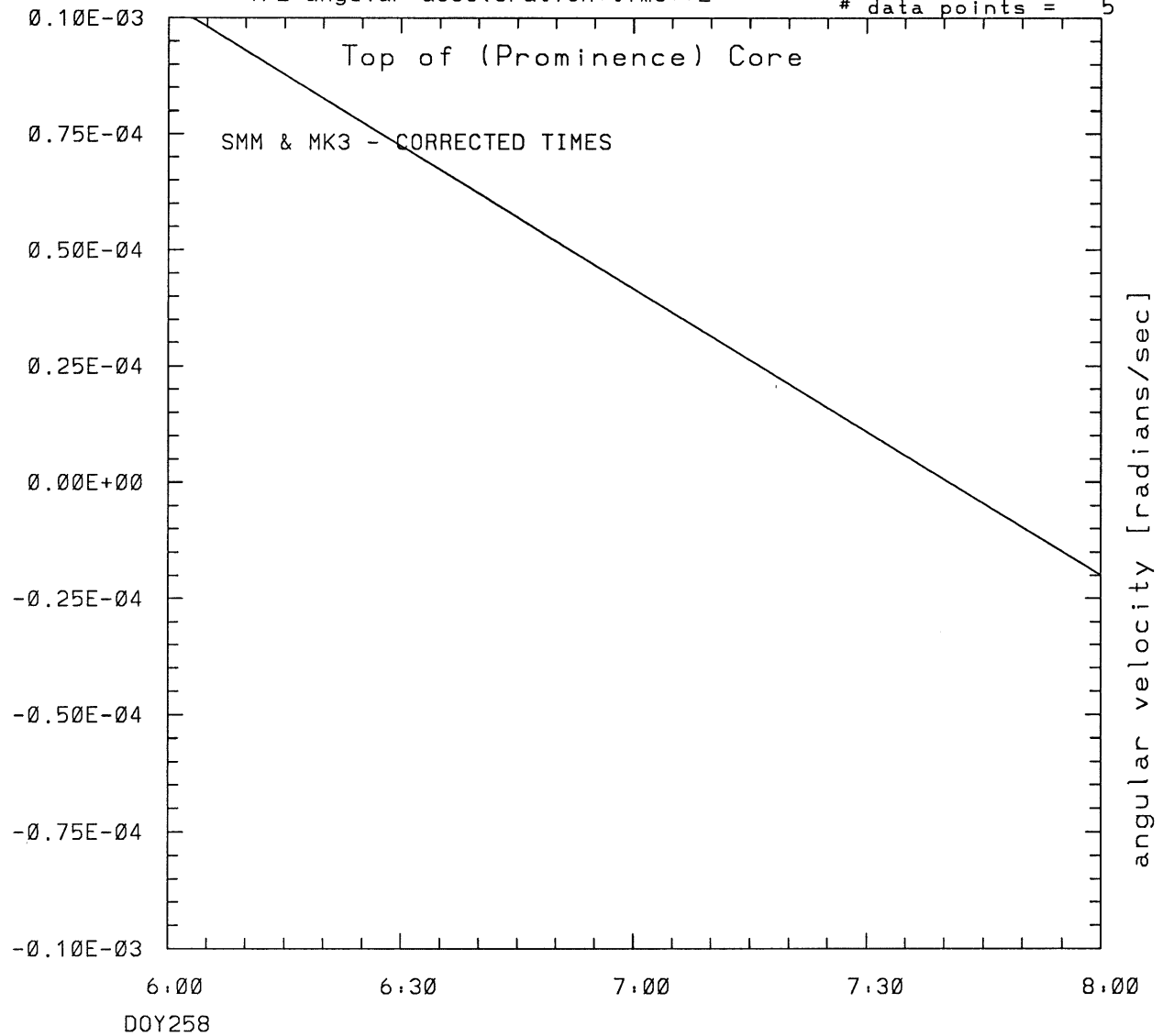380.
360.
340.
320.

6:00   6:30   7:00   7:30   8:00
DOY258

tstart=DOY258   6: 8 +/-   1.1 [min.]

radial acceleration=0.461E-01 km/sec**2

SMM C/P 1989 DOY258 271 +/- 5 degrees

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

data points =   5

Top of (Prominence) Core

0.10E-03

0.75E-04

SMM & MK3 - CORRECTED TIMES

0.50E-04

0.25E-04

0.00E+00

-0.25E-04

-0.50E-04

-0.75E-04

-0.10E-03

angular velocity [radians/sec]

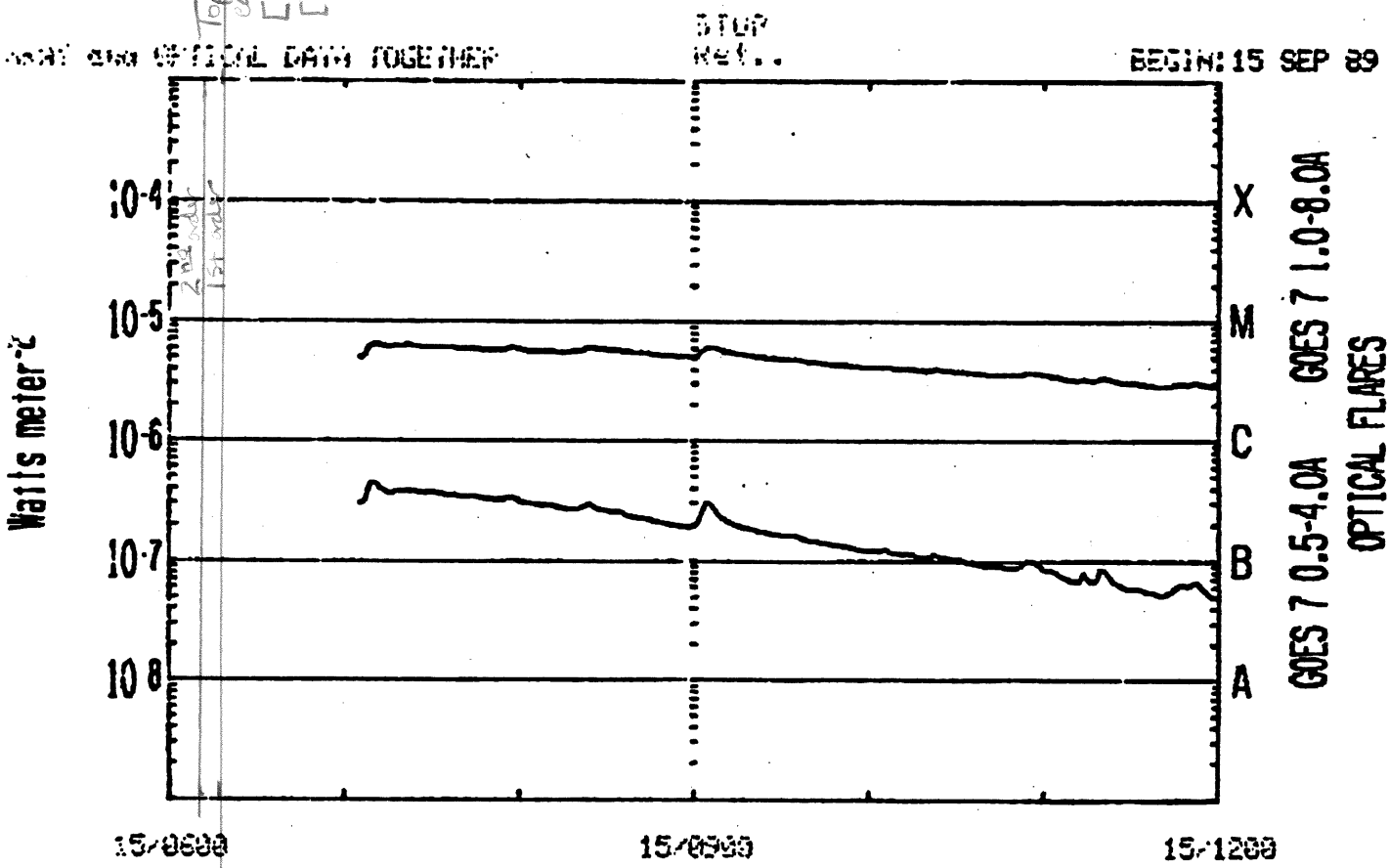6:00   6:30   7:00   7:30   8:00

DOY258

tstart=DOY258 6: 8 +/-   1.1 [min.]
angular acceleration=-.171E-07 +/-
0.125E-08 [rad/sec**2]

1989 Day 258

Top of Prominence in Northern Leg
Center = 263°
[6:18] 1st order
[6:11] 2nd order

Watts meter⁻²

10^{-4} X

10^{-5} M

10^{-6} C

10^{-7} B

10^{-8} A

GOES 7 1.0-8.0A

GOES 7 0.5-4.0A   OPTICAL FLARES

15/0600   15/0900   15/1200

SAA's
NIGHT

GOES-7 1 MIN DATA;   OPTICAL FLARE DUR, IMP, REGION

RUN: 2041UT
19 SEP 89

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

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


                               error in        error in
year doy      time    radii   radius      angle    angle    datatype
1989 258    6:36:53   2.00 +/- 0.10     266.0 +/-  0.5       SMM
1989 258    7:27:16   4.20 +/- 0.10     273.0 +/-  1.0       SMM
1989 258    7:35:32   4.60 +/- 0.15     273.0 +/-  1.0       SMM
1989 258    7:43:57   5.10 +/- 0.10     273.0 +/-  1.0       SMM
1989 258    7:52:53   5.50 +/- 0.20     273.0 +/-  1.0       SMM

*******************************************
 Structure being measured:
Top of (Prominence) Core
*******************************************


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

START TIME:

 Event began at t = 0 +  0.155E+02 +/-  0.124E+01 [minutes]
 In more convenient units:
 Event began at DOY 258  6:15 +/-  0.124E+01 [minutes]

 Origin defined at DOY258  6: 0

RADIAL INFORMATION:

RADIAL VELOCITY =   529. +/-    12. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =     0.293E+00 +/-     0.885E-01 [solar radii]
 c(2) =     0.456E-01 +/-     0.104E-02 [radii/min]
 c(2) =     0.529E+03 +/-     0.120E+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)=  0.11229E+00 [radii] see Bevington pg. 114
               error in c(2)=  0.12303E-02 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY =  0.3089E-04 +/-    0.3305E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 262. +/-    1. [degrees]
 a(2) =     0.106E+00 +/-     0.114E-01 [degrees/min]
 a(2) =     0.309E-04 +/-     0.330E-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  6:36 =   529. km/sec

The RADIAL velocity at  7:27 =   529. km/sec

The RADIAL velocity at  7:35 =   529. km/sec
```

The RADIAL velocity at   7:43 =   529. km/sec

The RADIAL velocity at   7:52 =   529. km/sec


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

Fit is ok [ier=1]

Standard Deviation in the height = 1.37
Standard Deviation in start time measurement =   0.266E+02
Error in time =   0.27782E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.415E-02
Reduced Chi Squared = 0.171E-01
Chi Squared = 0.512E-01
The probability for exceeding chi square = 0.100E+01

The correlation coefficient =   0.999E+00
The probability that no LINEAR correlation exists between the variables =   0.4159]
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 258   6:36:53   2.00 +/- 0.10     266.0 +/-  0.5      SMM
   1989 258   7:27:16   4.20 +/- 0.10     273.0 +/-  1.0      SMM
   1989 258   7:35:32   4.60 +/- 0.15     273.0 +/-  1.0      SMM
   1989 258   7:43:57   5.10 +/- 0.10     273.0 +/-  1.0      SMM
   1989 258   7:52:53   5.50 +/- 0.20     273.0 +/-  1.0      SMM

  *******************************************
   Structure being measured:
  Top of (Prominence) Core
  *******************************************

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

  START TIME:

   Event began at t = 0 +  0.776E+01 +/-  0.114E+01 [minutes]
   In more convenient units:
   Event began at DOY 258  6: 8 +/-  0.114E+01 [minutes]

   Origin defined at DOY258  6: 0

  RADIAL INFORMATION:

  RADIAL ACCELERATION =  0.461E-01 +/-  0.122E-01 km/sec**2

  The computed RADIAL coefficients and errors FROM NLLST2 are:

   c(1) =      0.768E+00 +/-     0.133E+00 [solar radii]
   c(2) =      0.290E-01 +/-     0.444E-02 [radii/min]
   c(2) =      0.336E+03 +/-     0.515E+02 [km/sec]
   c(3) =      0.119E-03 +/-     0.316E-04 [radii/min**2]
   c(3) =      0.461E-01 +/-     0.122E-01 [km/sec**2]

   The computed ERRORS in coefficients [BEVINGTON] are:

      Approximate error in c(1) =  0.20740E+00 [radii] Bevington pg 154 (8-30)
            Exact error in c(1) =  0.46502E-01 [radii] Bevington pg 154 (8-28)
      Approximate error in c(2) =  0.65329E-02 [radii/min] Bevington pg 154 (8-30)
            Exact error in c(2) =  0.17816E-02 [radii/min] Bevington pg 154 (8-28)
      Approximate error in c(3) =  0.44795E-04 [radii/min**2] Bevington pg 154 (8-30)
            Exact error in c(3) =  0.14146E-04 [radii/min**2] Bevington pg 154 (8-28)

  ANGULAR INFORMATION:

  ANGULAR ACCELERATION= -0.1710E-07 +/-   0.1250E-08[radians/sec**2]

  The computed ANGULAR coefficients and errors FROM NLLST2 are:

   a(1) = 255. +/-   1. [degrees]
   a(2) =     0.355E+00 +/-     0.182E-01 [degrees/min]
   a(2) =     0.103E-03 +/-     0.531E-05 [rad/sec]
   a(3) =    -0.176E-02 +/-     0.129E-03 [degrees/min**2]
   a(3) =    -0.171E-07 +/-     0.125E-08 [rad/sec**2]
```

The RADIAL velocity at   6:36 =   438. km/sec

The RADIAL velocity at   7:27 =   578. km/sec

The RADIAL velocity at   7:35 =   601. km/sec

The RADIAL velocity at   7:43 =   624. km/sec

The RADIAL velocity at   7:52 =   649. km/sec

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

 Fit is ok [ier=1]

 Standard Deviation in the height = 1.37
 Standard Deviation in start time measurement =   0.266E+02
 Value of reduced Chi Squared returned from nllst2 = 0.960E-03
 Reduced Chi Squared = 0.116E-01
 Chi Squared = 0.233E-01
 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 =   0.1072E+01
 The correlation between the data and the time**2 term =   0.1038E+01
 The correlation between the data and the complete equation of motion=0.1002E+01
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]