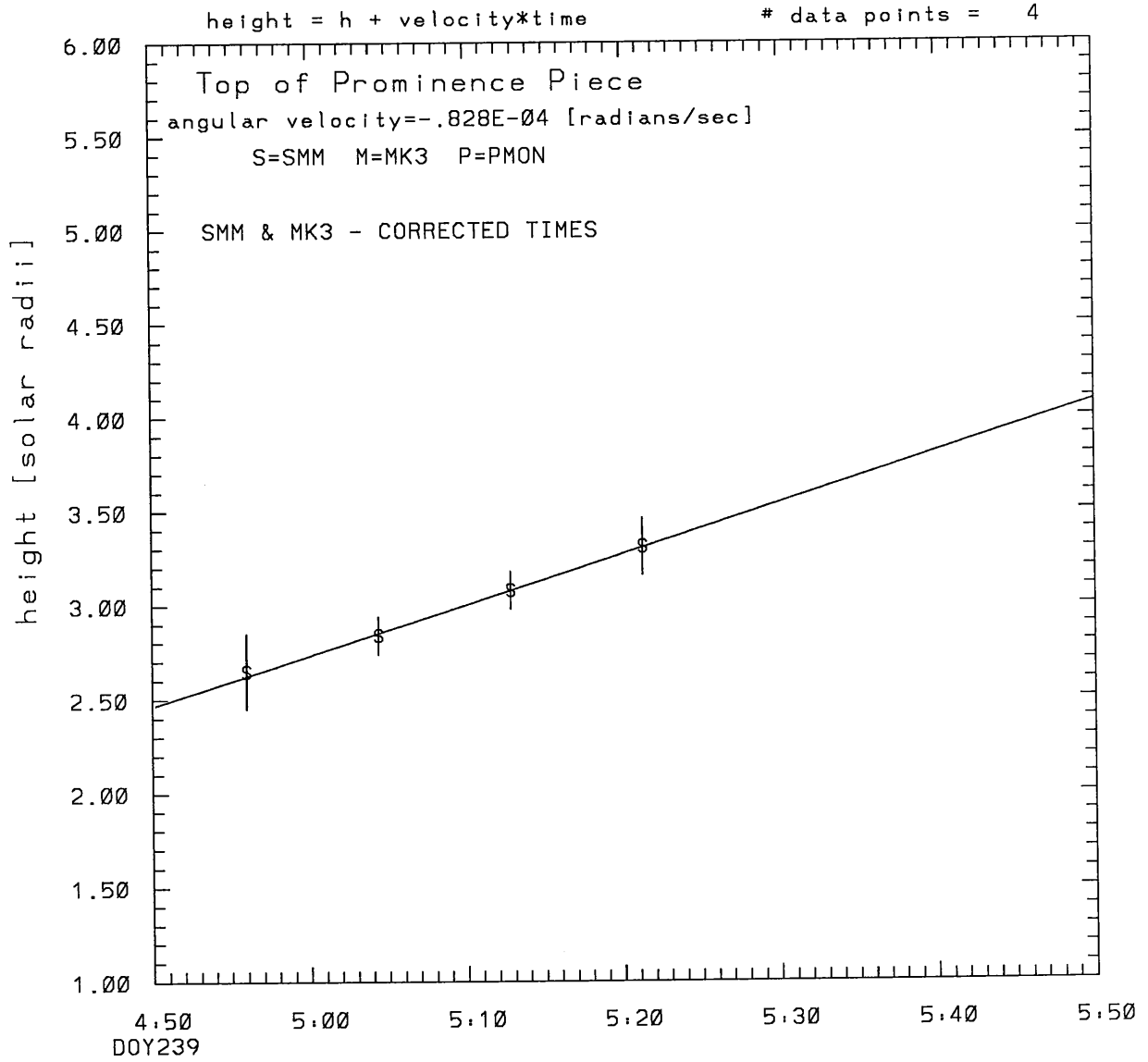


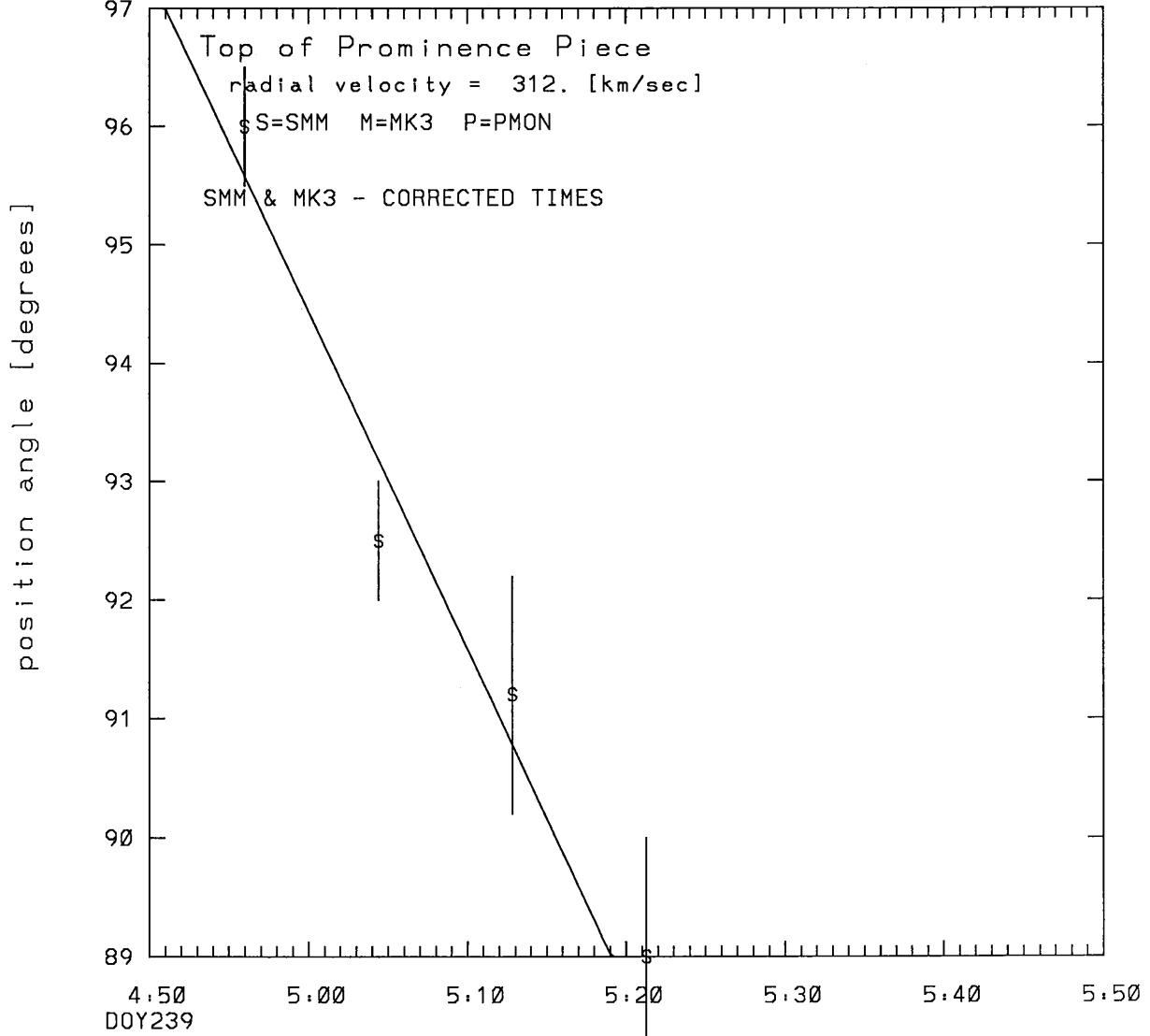
SMM C/P 1989 DOY239 92 +/- 4 degrees



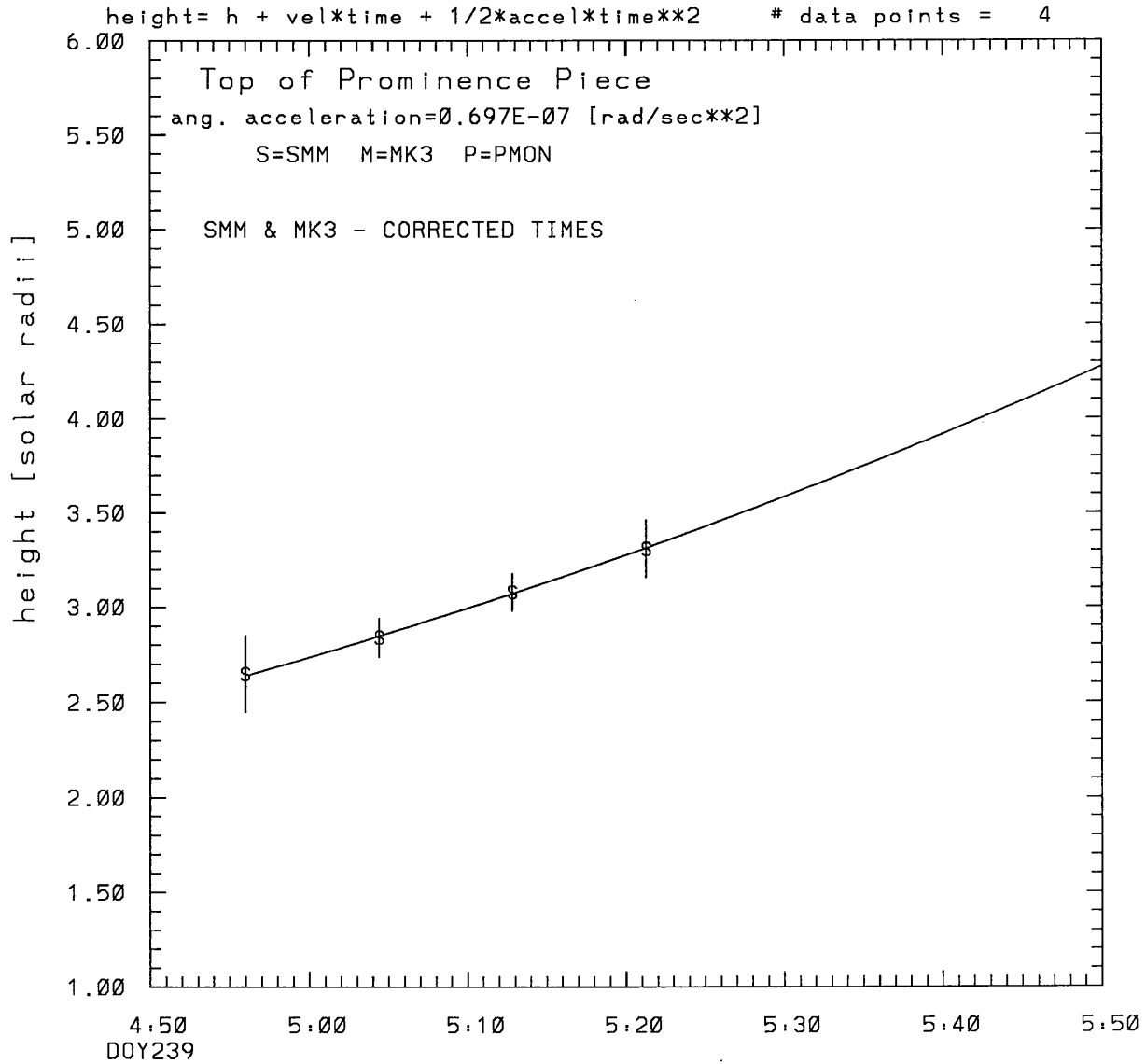
tstart=DOY239 3.56 +/- 0.8 [min.]
radial velocity= 312. +/- 10. [km/sec]

SMM C/P 1989 DOY239 92 +/- 4 degrees

angle = initial angle + angular velocity * time # data points = 4



SMM C/P 1989 DOY239 92 +/- 4 degrees

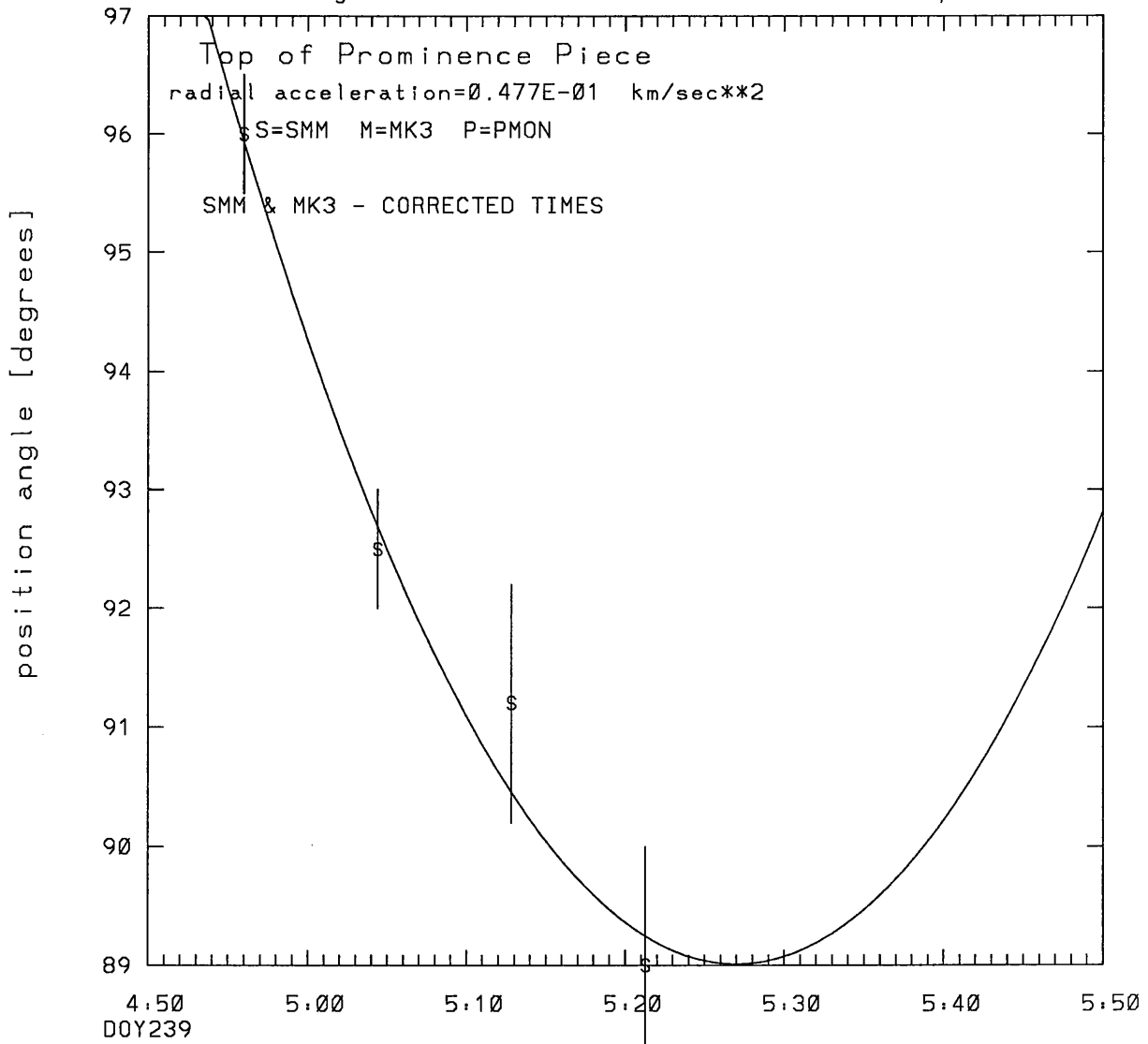


tstart=DOY239 3:21 from derivative=0
Event begins at 1.52 Solar Radii
radial acceleration = $0.0477 +/- 0.0336$ [km/sec**2]

SMM C/P 1989 DOY239 92 +/- 4 degrees

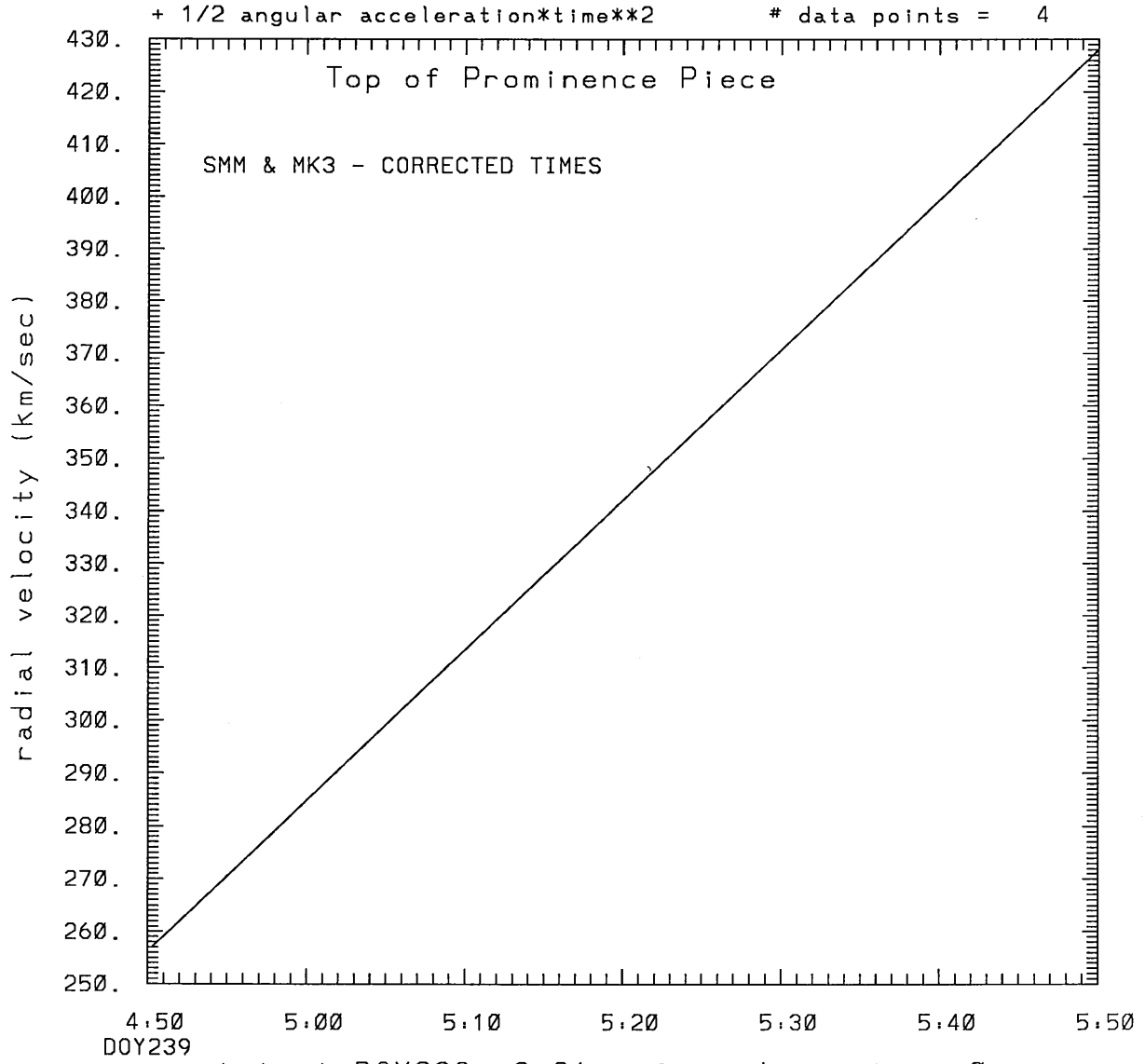
angle = initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2

data points = 4



Event begins at 1.52 Solar Radii
angular acceleration = 0.697E-07 +/- 0.281E-07 [rad/sec**2]

SMM C/P 1989 DOY239 92 +/- 4 degrees

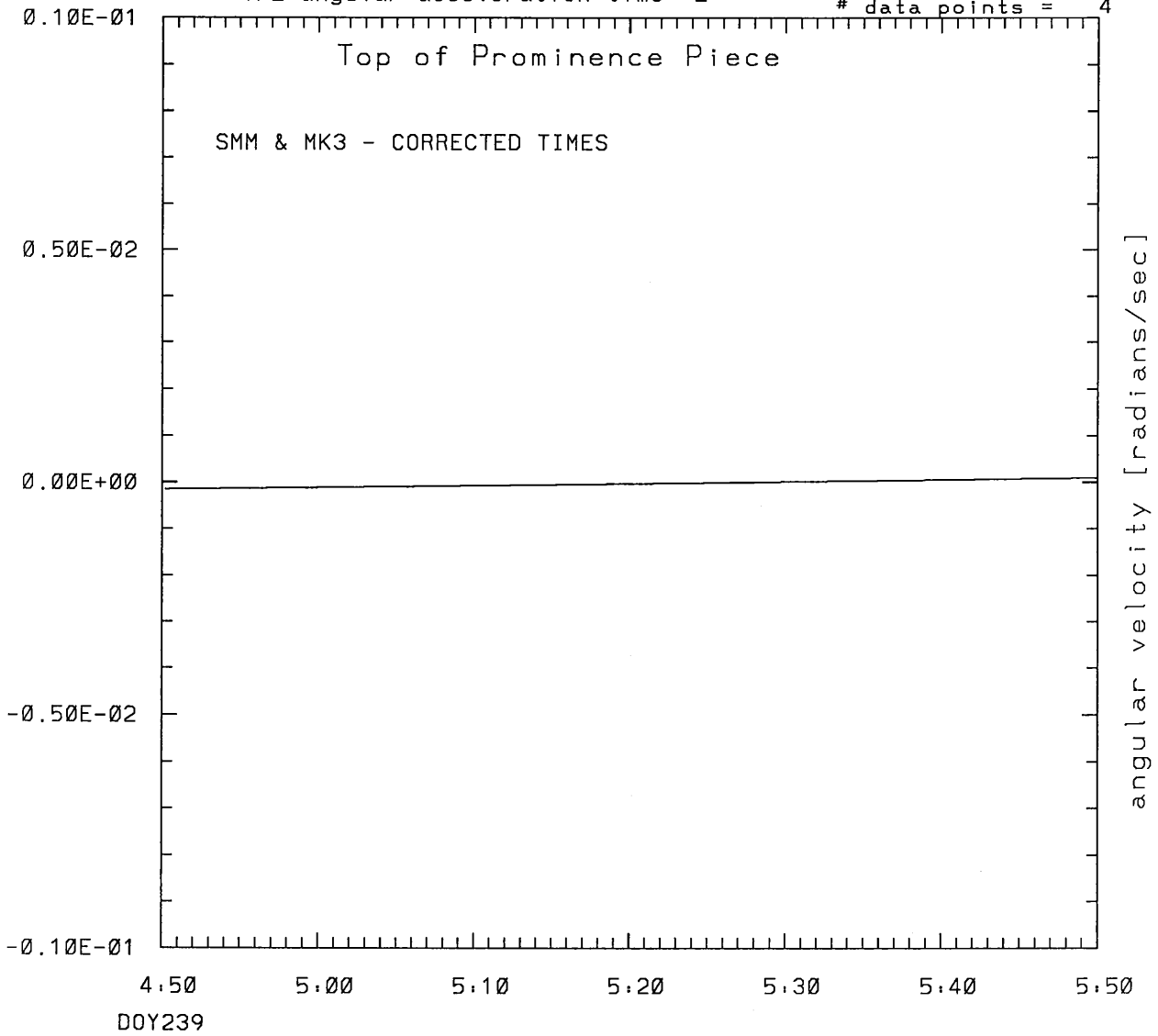


DOY239
tstart=DOY239 3:21 from derivative=0
Event begins at 1.52 Solar Radii
radial acceleration=0.477E-01 km/sec**2

SMM C/P 1989 DOY239 92 +/- 4 degrees

$$\text{angle} = \text{initial angle} + \text{angular velocity} * \text{time} + \frac{1}{2} \text{angular acceleration} * \text{time} ** 2$$

data points = 4

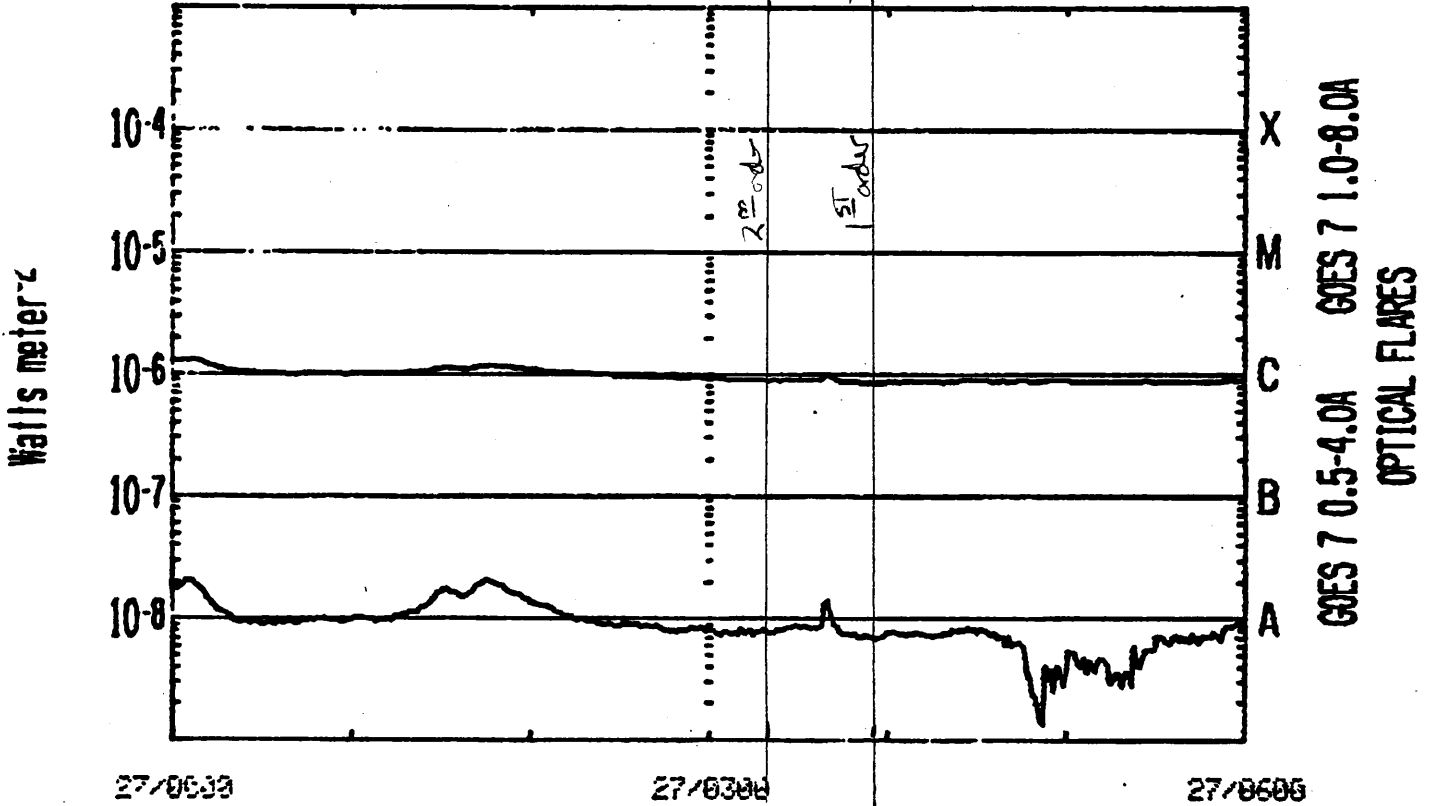


angular acceleration = $0.697E-07 \pm 0.281E-07$ [rad/sec**2]

1989 Day 239

MAY and OPTICAL DATA TOGETHER

BEGIN: 27 AUG 89



27/0630

27/0306

27/0606

SAA's

NIGHT

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

RUN: 1456UT
28 AUG 89

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	239	4:55:58	2.65 +/-	0.20	96.0 +/-	0.5	SMM
1989	239	5: 4:24	2.84 +/-	0.10	92.5 +/-	0.5	SMM
1989	239	5:12:50	3.08 +/-	0.10	91.2 +/-	1.0	SMM
1989	239	5:21:17	3.31 +/-	0.15	89.0 +/-	1.0	SMM

Structure being measured:
Top of Prominence(?) Piece

OUTPUT:

START TIME:

Event began at $t = 0 + -0.544E+02 +/- 0.758E+00$ [minutes]
In more convenient units:
Event began at DOY 239 3:56 +/- 0.758E+00 [minutes]

Origin defined at DOY239 4:50

RADIAL INFORMATION:

RADIAL VELOCITY = 312. +/- 10. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.246E+01 +/- 0.174E-01 [solar radii]
c(2) = 0.269E-01 +/- 0.836E-03 [radii/min]
c(2) = 0.312E+03 +/- 0.970E+01 [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)= 0.22470E-01 [radii] see Bevington pg. 114
error in c(2)= 0.10765E-02 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.8282E-04 +/- 0.1179E-04[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 97. +/- 1. [degrees]
a(2) = -0.285E+00 +/- 0.405E-01 [degrees/min]
a(2) = -0.828E-04 +/- 0.118E-04 [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, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 4:55 = -153. km/sec

The RADIAL velocity at 4:55 = 312. km/sec

The TOTAL velocity at 4:55 = 347. km/sec

The TANGENTIAL velocity at 5: 4 = -163. km /sec
The RADIAL velocity at 5: 4 = 312. km/sec

The TOTAL velocity at 5: 4 = 352. km/sec

The TANGENTIAL velocity at 5:12 = -177. km /sec
The RADIAL velocity at 5:12 = 312. km/sec

The TOTAL velocity at 5:12 = 359. km/sec

The TANGENTIAL velocity at 5:21 = -191. km /sec
The RADIAL velocity at 5:21 = 312. km/sec

The TOTAL velocity at 5:21 = 366. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.29
Standard Deviation in start time measurement = 0.943E+01
Error in time = 0.10675E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.150E-03
Reduced Chi Squared = 0.512E-03
Chi Squared = 0.102E-02
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 = 0.1175]
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

This is a 2 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1989	239	4:55:58	2.65 +/-	0.20	96.0 +/-	0.5	SMM
1989	239	5: 4:24	2.84 +/-	0.10	92.5 +/-	0.5	SMM
1989	239	5:12:50	3.08 +/-	0.10	91.2 +/-	1.0	SMM
1989	239	5:21:17	3.31 +/-	0.15	89.0 +/-	1.0	SMM

Structure being measured:
Top of Prominence(?) Piece

OUTPUT:

START TIME:

tstart=DOY239 3:21 from derivative = 0
Event begins at 1.52 Solar Radii
Origin defined at DOY239 4:50

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.477E-01 +/- 0.336E-01 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.250E+01 +/- 0.322E-01 [solar radii]
c(2) = 0.221E-01 +/- 0.347E-02 [radii/min]
c(2) = 0.256E+03 +/- 0.402E+02 [km/sec]
c(3) = 0.123E-03 +/- 0.869E-04 [radii/min**2]
c(3) = 0.477E-01 +/- 0.336E-01 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.33087E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.19577E-01 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.41608E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.22120E-02 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.10947E-03 [radii/min**2] Bevington pg 154 (8-30)
Exact error in c(3) = 0.54271E-04 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= 0.6968E-07 +/- 0.2815E-07[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 99. +/- 1. [degrees]
a(2) = -0.532E+00 +/- 0.103E+00 [degrees/min]
a(2) = -0.155E-03 +/- 0.299E-04 [rad/sec]
a(3) = 0.719E-02 +/- 0.290E-02 [degrees/min**2]
a(3) = 0.697E-07 +/- 0.281E-07 [rad/sec**2]

THE TANGENTIAL, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:
The TANGENTIAL velocity at 4:55 = -239. km /sec

The RADIAL velocity at 4:55 = 273. km/sec

The TOTAL velocity at 4:55 = 363. km/sec

The TANGENTIAL velocity at 5: 4 = -187. km /sec

The RADIAL velocity at 5: 4 = 297. km/sec

The TOTAL velocity at 5: 4 = 351. km/sec

The TANGENTIAL velocity at 5:12 = -127. km /sec

The RADIAL velocity at 5:12 = 322. km/sec

The TOTAL velocity at 5:12 = 346. km/sec

The TANGENTIAL velocity at 5:21 = -55. km /sec

The RADIAL velocity at 5:21 = 346. km/sec

The TOTAL velocity at 5:21 = 350. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.29

Standard Deviation in start time measurement = 0.943E+01

Value of reduced Chi Squared returned from nllst2 = 0.112E-03

Reduced Chi Squared = 0.505E-03

Chi Squared = 0.505E-03

The probability for exceeding chi square = 0.992E+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 = 0.7811E+00

The correlation between the data and the time**2 term = 0.7993E+00

The correlation between the data and the complete equation of motion=0.9991E+00

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