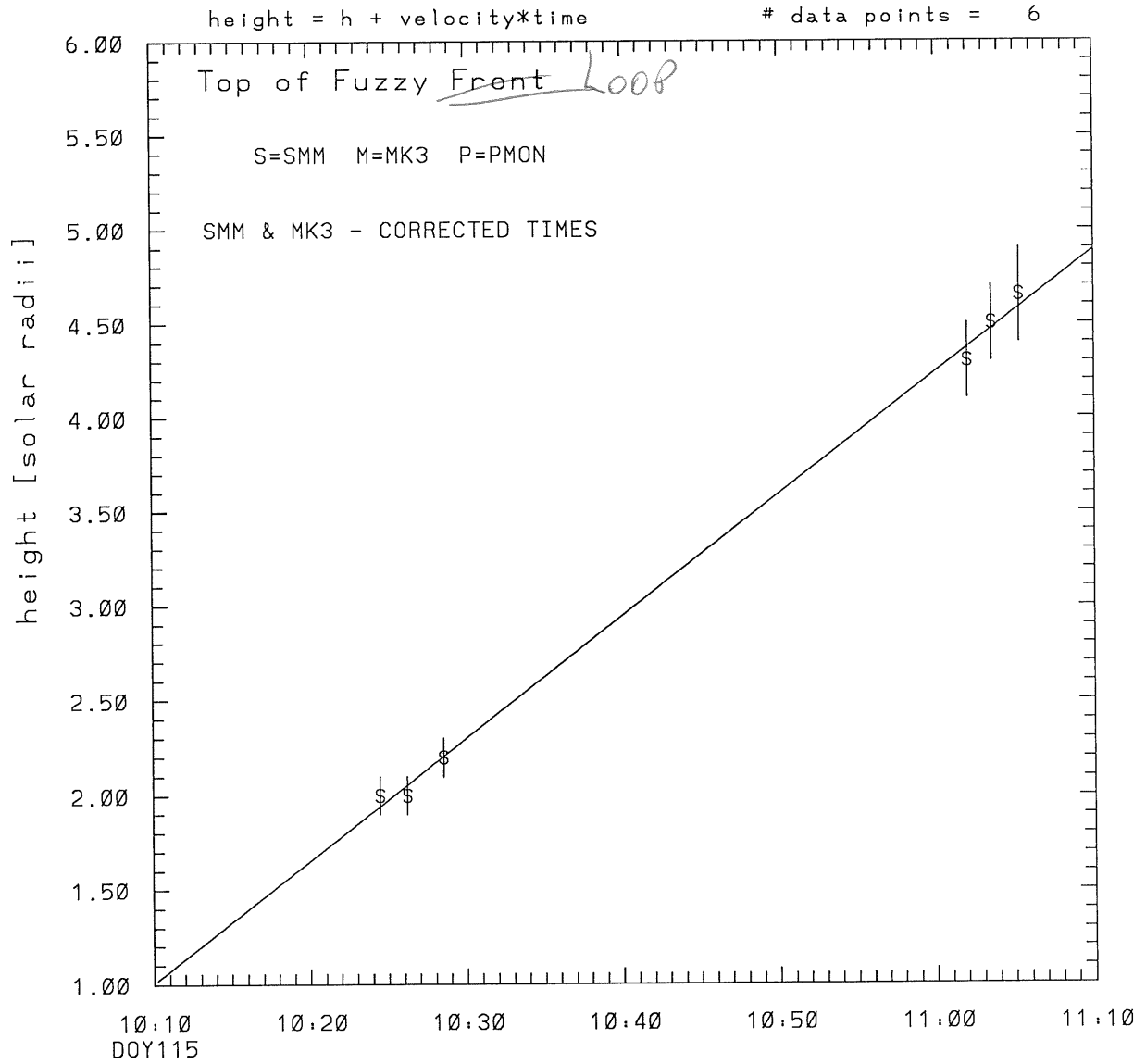
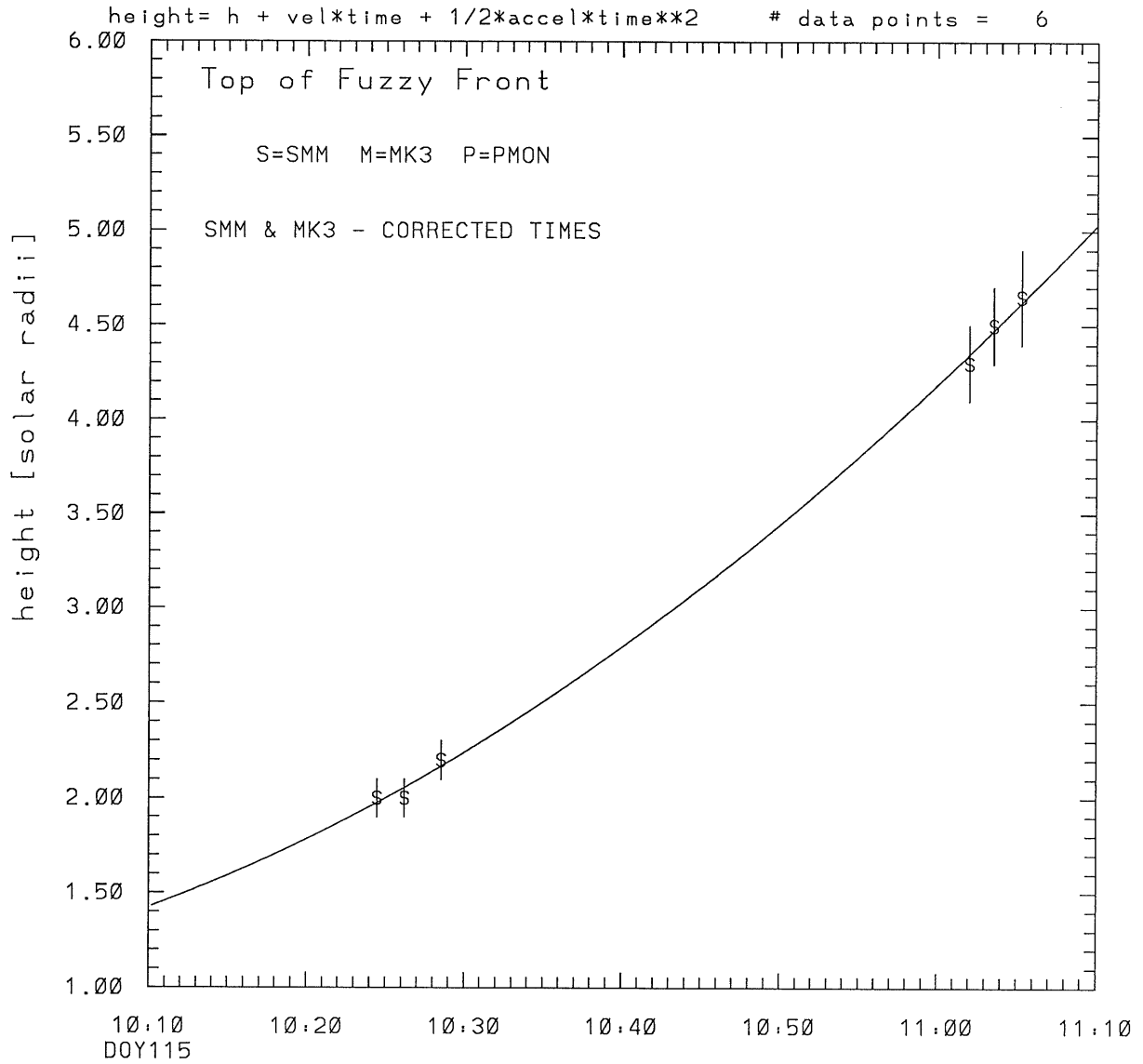


SMM C/P 1980 DOY115 139 +/- 0 degrees



tstart=DOY115 10:10 +/- 0.0 [min.]  
radial velocity= 750. +/- 18. [km/sec]

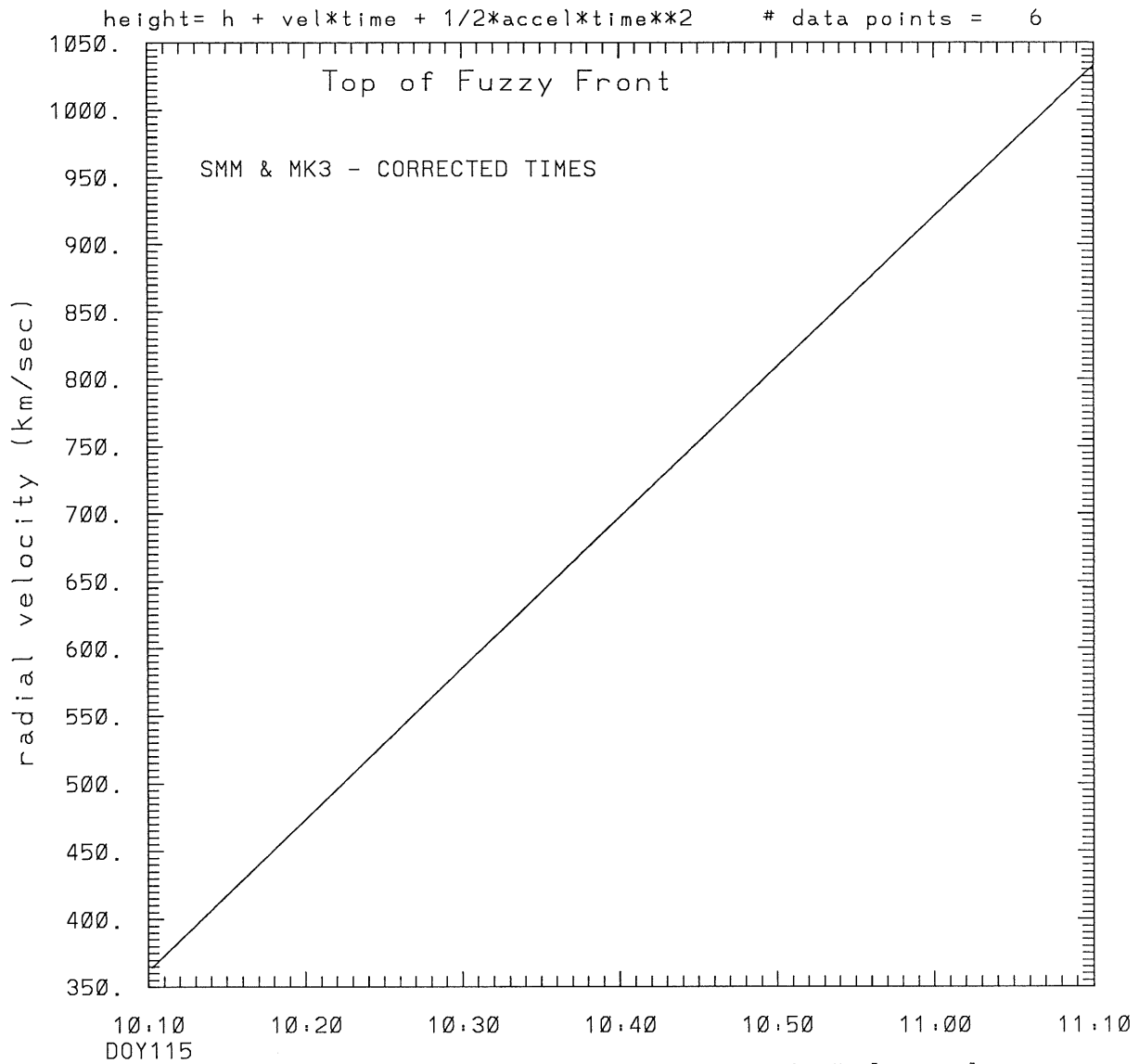
SMM C/P 1980 DOY115 139 +/- 0 degrees



tstart=DOY115 9:51 +/- 8.0 [min.]

radial acceleration = 0.1864 +/- 0.1304 [km/sec\*\*2]

SMM C/P 1980 DOY115 139 +/- 0 degrees



tstart=DOY115 9:51 +/- 8.0 [min.]

radial acceleration=0.186E+00 km/sec\*\*2

\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	radii	radius	error in	angle	error in	datatype
1980	115	10:24:28	2.00	+/- 0.10	139.0	+/- 0.5	SMM	
1980	115	10:26:13	2.00	+/- 0.10	139.0	+/- 0.5	SMM	
1980	115	10:28:32	2.20	+/- 0.10	139.0	+/- 0.5	SMM	
1980	115	11: 2: 1	4.30	+/- 0.20	139.0	+/- 0.5	SMM	
1980	115	11: 3:33	4.50	+/- 0.20	139.0	+/- 0.5	SMM	
1980	115	11: 5:17	4.65	+/- 0.25	139.0	+/- 0.5	SMM	

\*\*\*\*\*

Structure being measured:

Top of Fuzzy Front

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.105E+00 +/- 0.104E-02$  [minutes]

In more convenient units:

Event began at DOY 115 10:10 +/- 0.104E-02 [minutes]

Origin defined at DOY115 10:10

RADIAL INFORMATION:

RADIAL VELOCITY = 750. +/- 18. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.101E+01 +/- 0.413E-01$  [solar radii]

$c(2) = 0.646E-01 +/- 0.152E-02$  [radii/min]

$c(2) = 0.750E+03 +/- 0.176E+02$  [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  $c(1) = 0.56688E-01$  [radii] see Bevington pg. 114

error in  $c(2) = 0.14288E-02$  [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) = 139. +/- 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 10:24 = 0.000E+00 km/sec

The TOTAL velocity at 10:24 = 750. km/sec

The TANGENTIAL velocity at 10:26 = 0.000E+00 km/sec

The TOTAL velocity at 10:26 = 750. km/sec

The TANGENTIAL velocity at 10:28 = 0.000E+00 km/sec

The TOTAL velocity at 10:28 = 750. km/sec

The TANGENTIAL velocity at 11: 2 = 0.000E+00 km/sec

The TOTAL velocity at 11: 2 = 750. km/sec

The TANGENTIAL velocity at 11: 3 = 0.000E+00 km/sec

The TOTAL velocity at 11: 3 = 750. km/sec

The TANGENTIAL velocity at 11: 5 = 0.000E+00 km/sec

The TOTAL velocity at 11: 5 = 750. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 1.33

Standard Deviation in start time measurement = 0.187E+02

Error in time = 0.20213E+01 using best fit method

See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.284E-02

Reduced Chi Squared = 0.157E-01

Chi Squared = 0.628E-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 = 0.1332E-05

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

\*\*\*\*\*  
This is a 2 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	doy	time	radii	radius	error in	angle	angle	error in	datatype
1980	115	10:24:28	2.00	+/- 0.10	139.0	+/- 0.5			SMM
1980	115	10:26:13	2.00	+/- 0.10	139.0	+/- 0.5			SMM
1980	115	10:28:32	2.20	+/- 0.10	139.0	+/- 0.5			SMM
1980	115	11: 2: 1	4.30	+/- 0.20	139.0	+/- 0.5			SMM
1980	115	11: 3:33	4.50	+/- 0.20	139.0	+/- 0.5			SMM
1980	115	11: 5:17	4.65	+/- 0.25	139.0	+/- 0.5			SMM

\*\*\*\*\*  
Structure being measured:  
Top of Fuzzy Front  
\*\*\*\*\*

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.194E+02 +/- 0.803E+01$  [minutes]  
In more convenient units:  
Event began at DOY 115 9:51 +/- 0.803E+01 [minutes]

Origin defined at DOY115 10:10

RADIAL INFORMATION:

RADIAL ACCELERATION =  $0.186E+00 +/- 0.130E+00$  km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.142E+01 +/- 0.294E+00$  [solar radii]  
 $c(2) = 0.312E-01 +/- 0.235E-01$  [radii/min]  
 $c(2) = 0.362E+03 +/- 0.272E+03$  [km/sec]  
 $c(3) = 0.482E-03 +/- 0.337E-03$  [radii/min\*\*2]  
 $c(3) = 0.186E+00 +/- 0.130E+00$  [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in  $c(1) = 0.34789E+00$  [radii] Bevington pg 154 (8-30)  
Exact error in  $c(1) = 0.11453E+00$  [radii] Bevington pg 154 (8-28)  
Approximate error in  $c(2) = 0.27593E-01$  [radii/min] Bevington pg 154 (8-30)  
Exact error in  $c(2) = 0.92877E-02$  [radii/min] Bevington pg 154 (8-28)  
Approximate error in  $c(3) = 0.39414E-03$  [radii/min\*\*] Bevington pg 154 (8-30)

Exact error in c(3) = 0.13301E-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) = 139. +/- 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 10:24 = 0.000E+00 km/sec

The TOTAL velocity at 10:24 = 524. km/sec

The TANGENTIAL velocity at 10:26 = 0.000E+00 km/sec

The TOTAL velocity at 10:26 = 543. km/sec

The TANGENTIAL velocity at 10:28 = 0.000E+00 km/sec

The TOTAL velocity at 10:28 = 569. km/sec

The TANGENTIAL velocity at 11: 2 = 0.000E+00 km/sec

The TOTAL velocity at 11: 2 = 943. km/sec

The TANGENTIAL velocity at 11: 3 = 0.000E+00 km/sec

The TOTAL velocity at 11: 3 = 961. km/sec

The TANGENTIAL velocity at 11: 5 = 0.000E+00 km/sec

The TOTAL velocity at 11: 5 = 980. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 1.33

Standard Deviation in start time measurement = 0.187E+02

Value of reduced Chi Squared returned from nllst2 = 0.235E-02

Reduced Chi Squared = 0.940E-02

Chi Squared = 0.282E-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 = 0.9974E+00

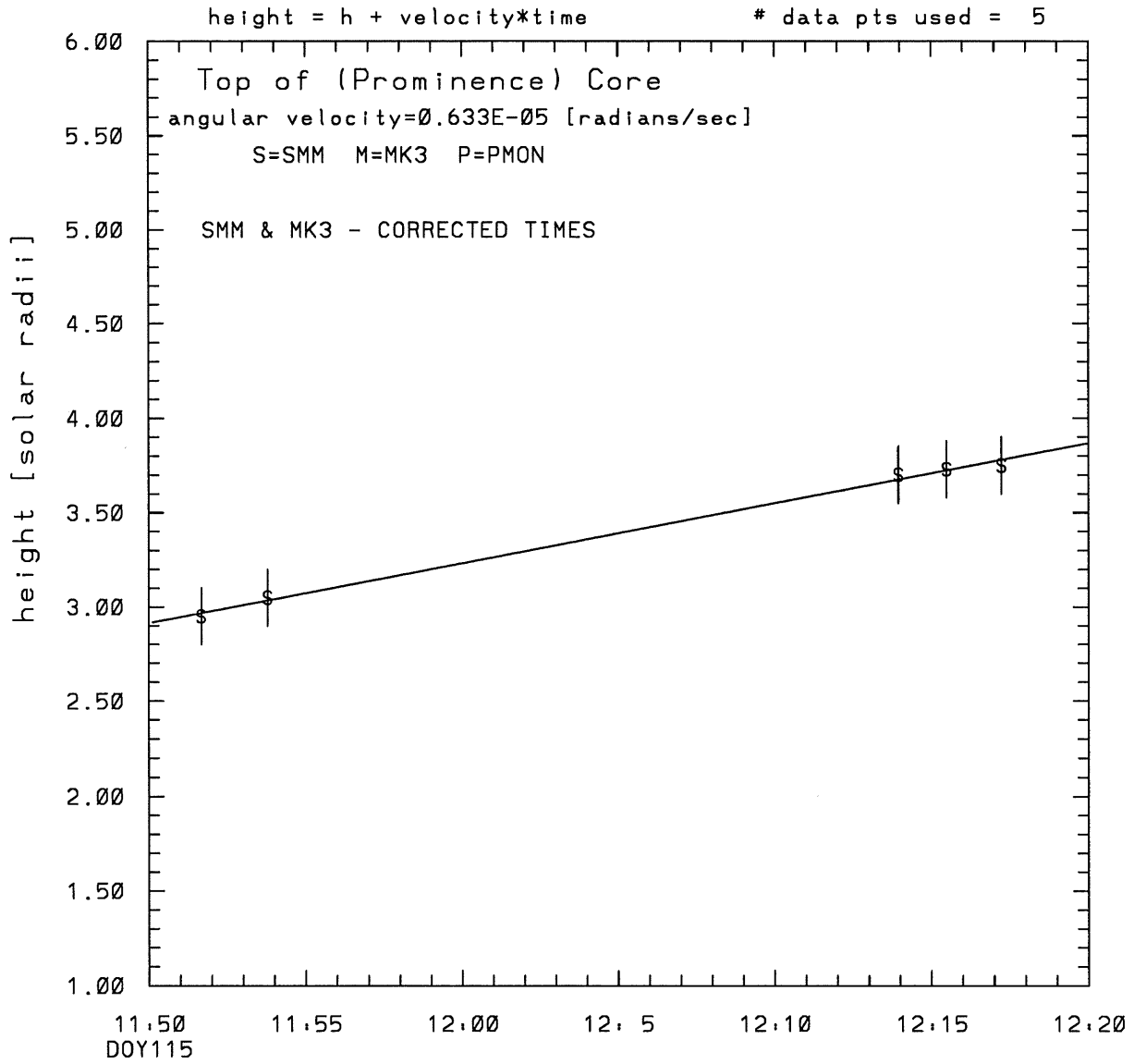
The correlation between the data and the time\*\*2 term = 0.9941E+00

The correlation between the data and the complete equation of motion = 0.9984E+00

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



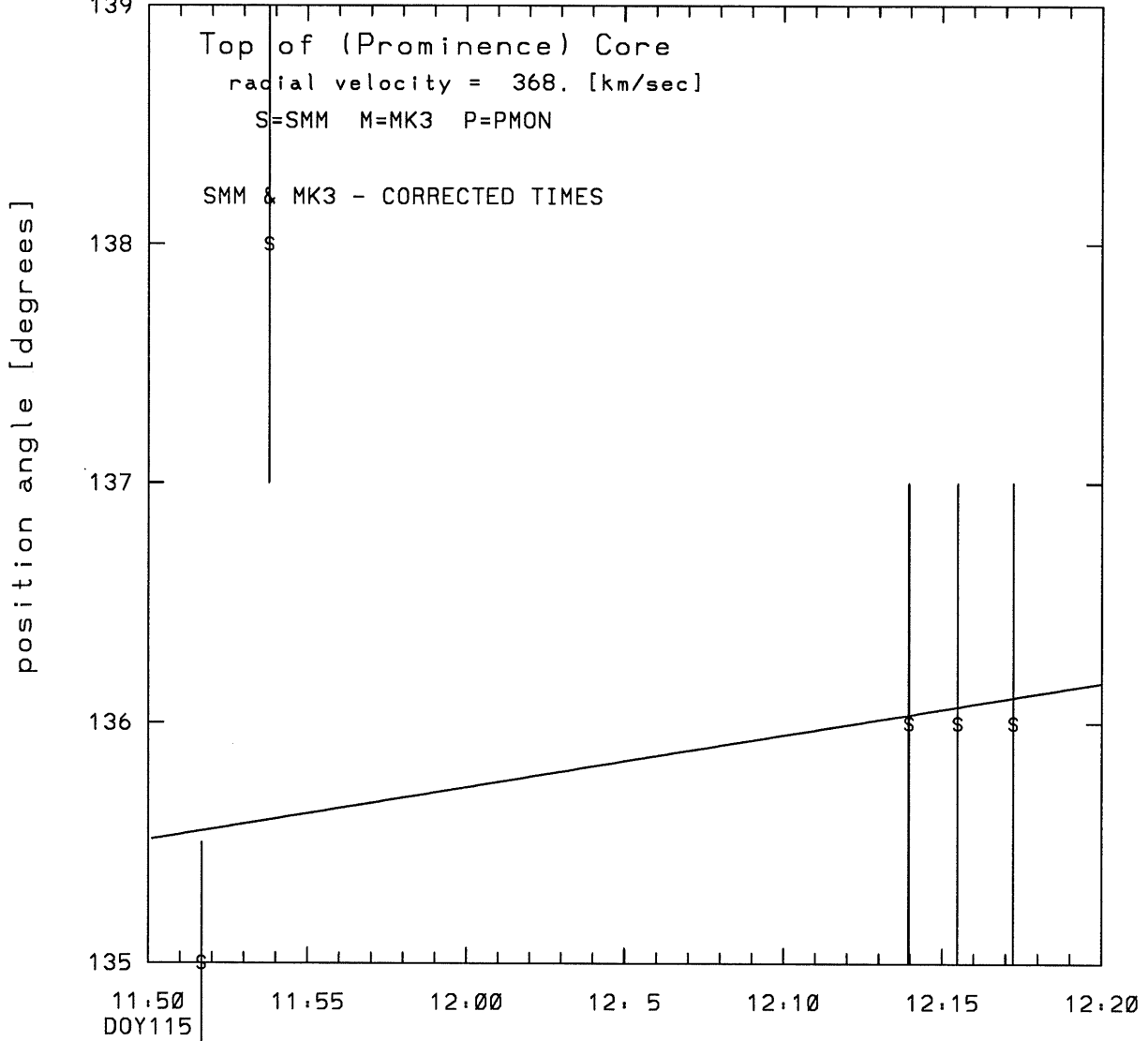
SMM C/P 1980 DOY115 136 +/- 2 degrees



tstart=DOY115 10.50 +/- 0.6 [min.]  
radial velocity = 368. +/- 10. [km/sec]

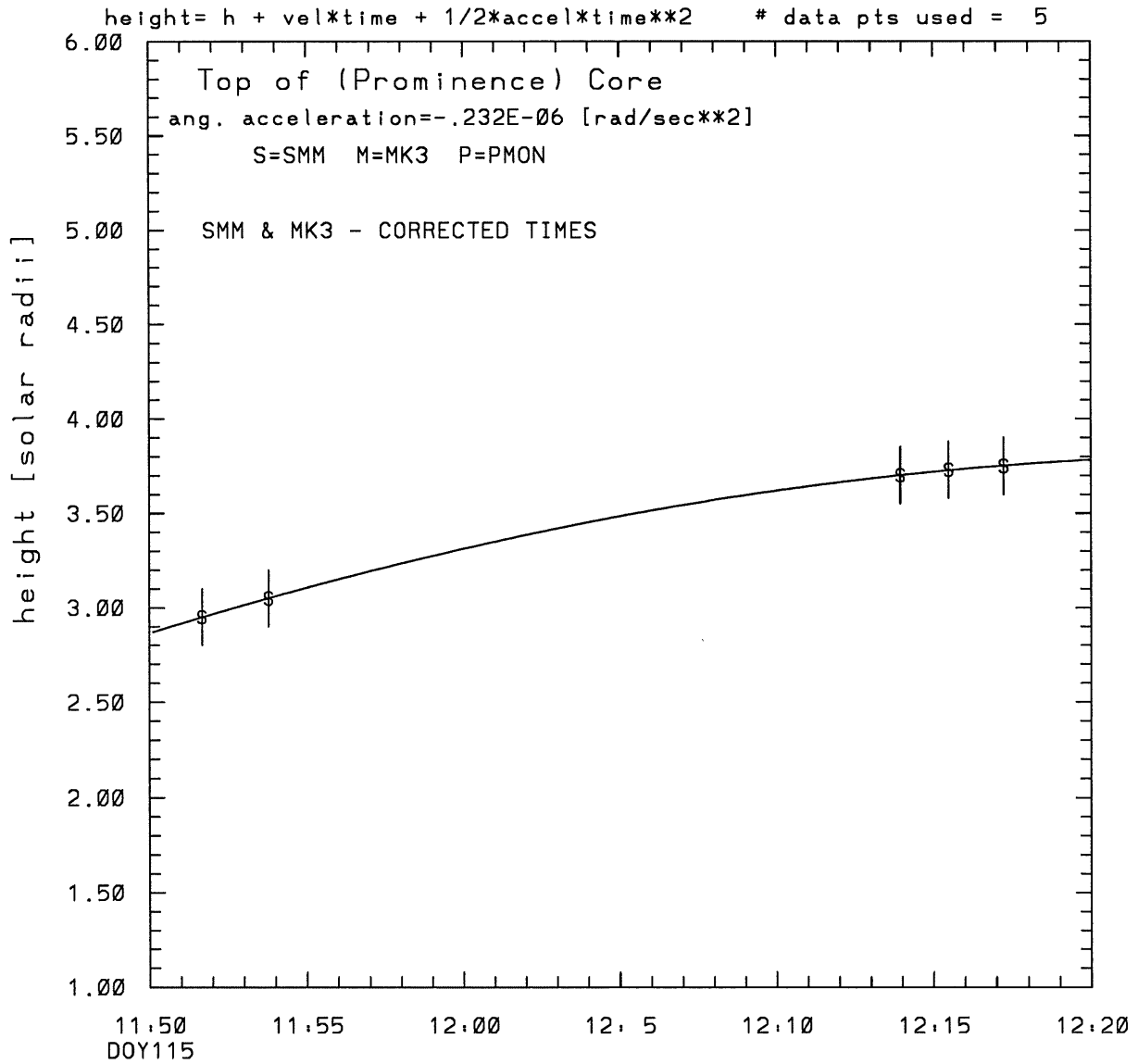
SMM C/P 1980 DOY115 136 +/- 2 degrees

angle = initial angle + angular velocity \* time # data pts used = 5



tstart = DOY115 10:50 +/- 0.6 [min.]  
angular velocity = 0.633E-05 +/- 0.119E-04 [rad/sec]

SMM C/P 1980 DOY115 136 +/- 2 degrees



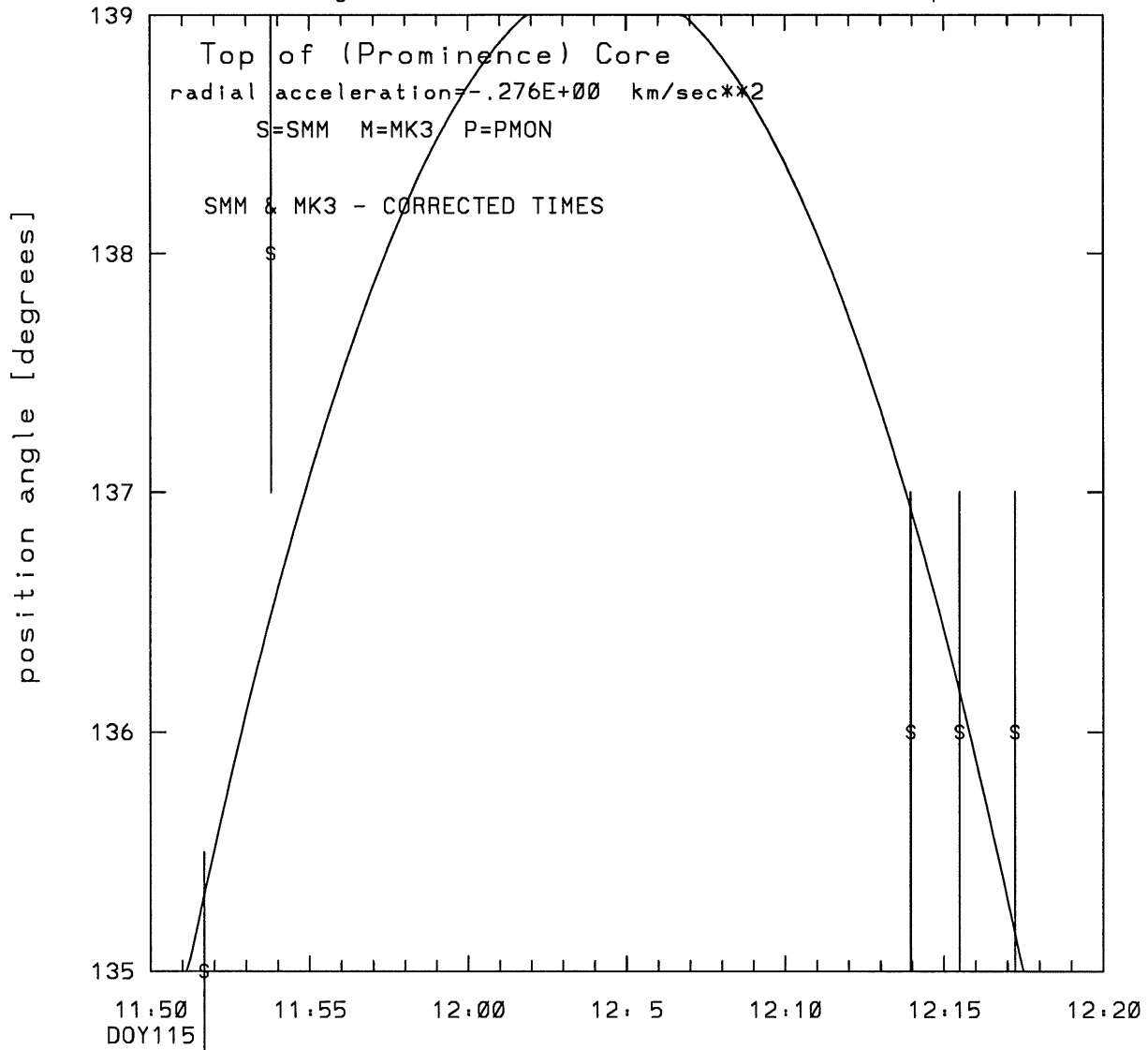
tstart=DOY115 11.24 +/- 0.6 [min.]

radial acceleration =  $-0.2762 +/- 0.0147$  [km/sec\*\*2]

SMM C/P 1980 DOY115 136 +/- 2 degrees

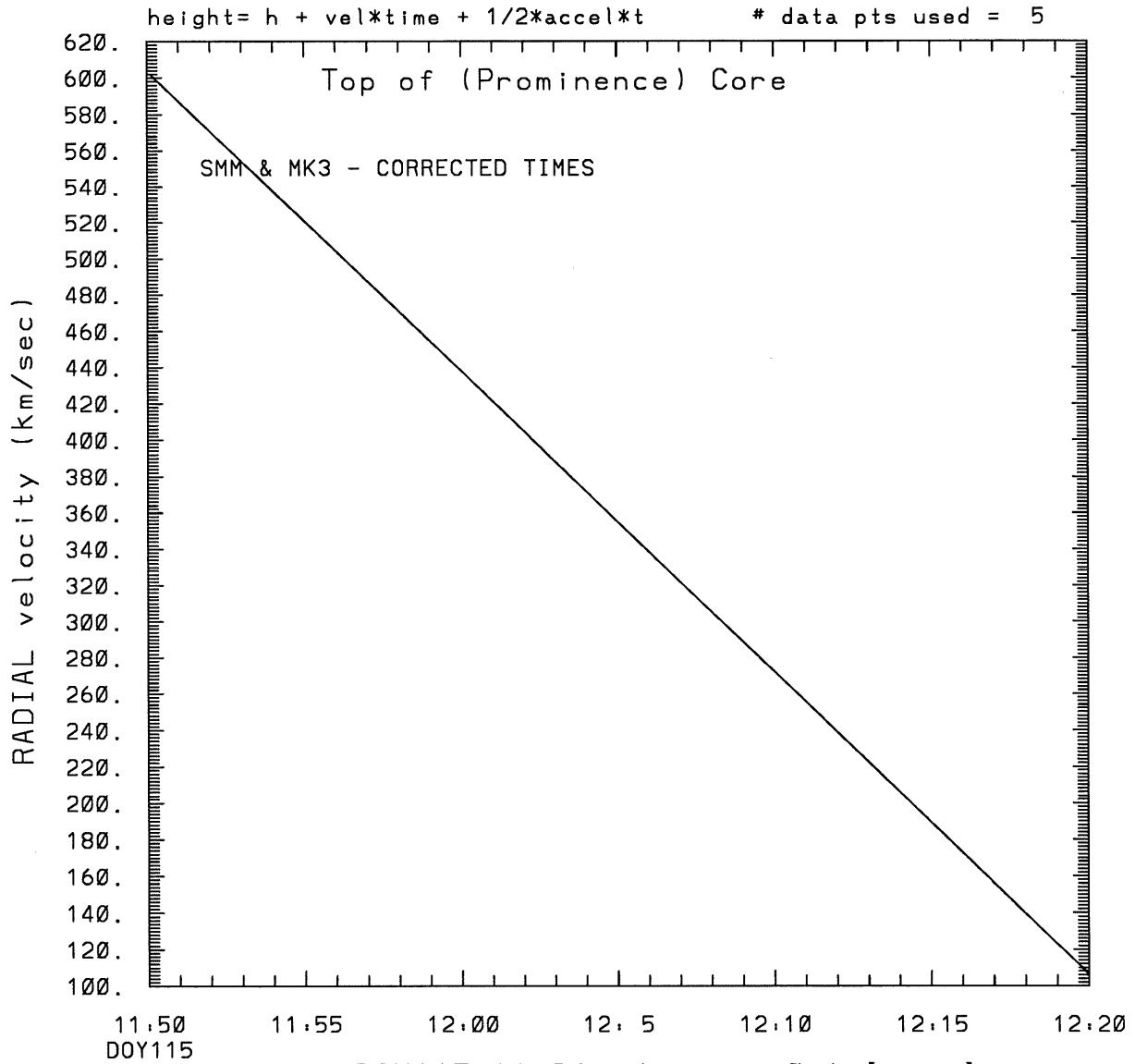
angle = initial angle + angular velocity\*time  
+ 1/2 angular acceleration\*time\*\*2

# data pts used = 5



tstart = DOY115 11:24 +/- 0.6 [min.]  
angular acceleration =  $-.232E-06$  +/-  $0.168E-06$  [rad/sec\*\*2]

SMM C/P 1980 DOY115 136 +/- 2 degrees



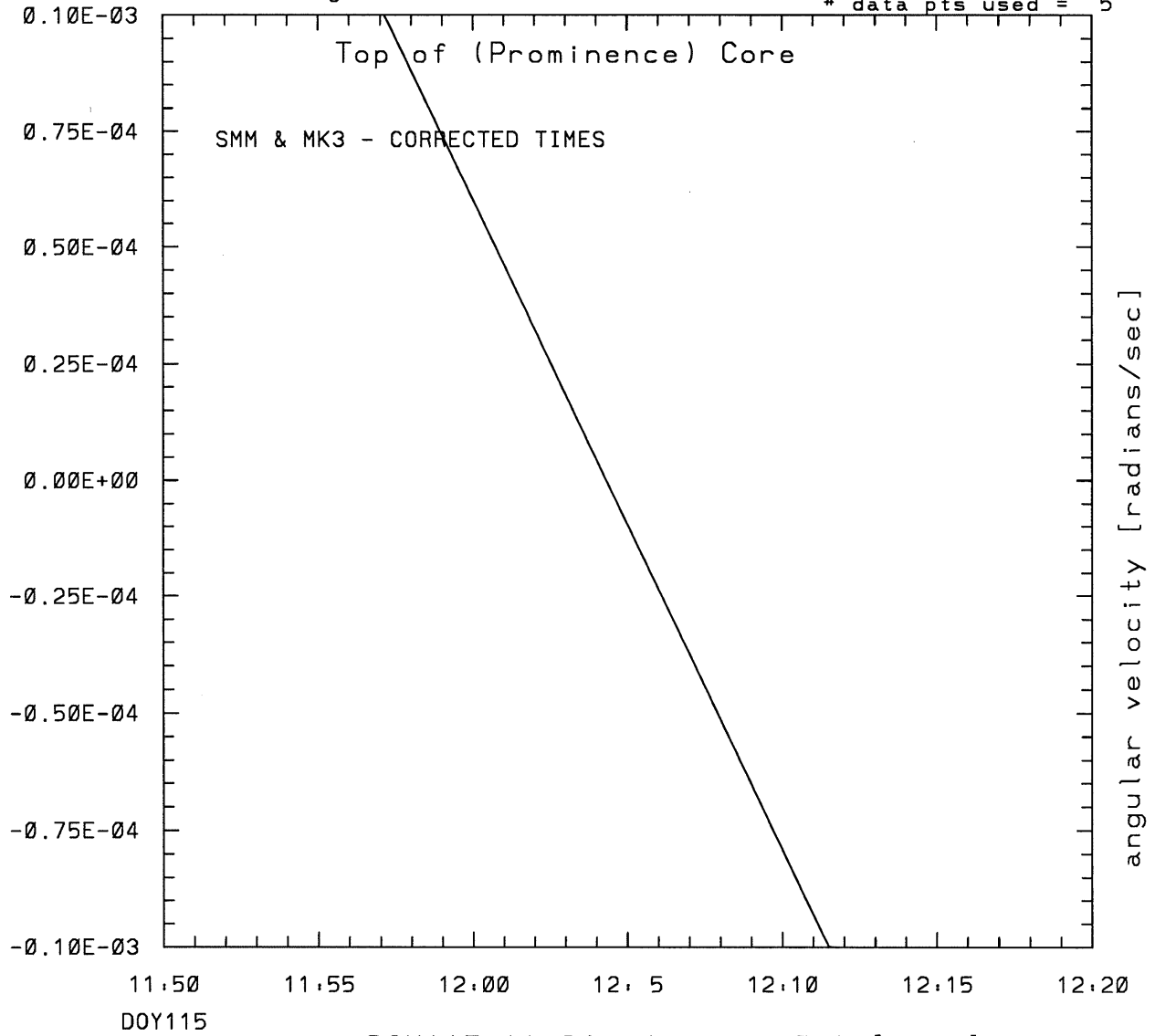
tstart=DOY115 11:24 +/- 0.6 [min.]

radial acceleration=-.276E+00 km/sec\*\*2

SMM C/P 1980 DOY115 136 +/- 2 degrees

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

# data pts used = 5



tstart=DOY115 11:24 +/- 0.6 [min.]

angular acceleration=-.232E-06 +/-

0.168E-06 [rad/sec\*\*2]

\*\*\*\*\*  
This is a 1 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	doy	time	radii	radius	angle	error in angle	error in angle	datatype
1980	115	11:51:40	2.95 +/- 0.15	135.0 +/- 0.5				SMM
1980	115	11:53:47	3.05 +/- 0.15	138.0 +/- 1.0				SMM
1980	115	12:13:57	3.70 +/- 0.15	136.0 +/- 1.0				SMM
1980	115	12:15:29	3.73 +/- 0.15	136.0 +/- 1.0				SMM
1980	115	12:17:14	3.75 +/- 0.15	136.0 +/- 1.0				SMM

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

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.603E+02 +/- 0.650E+00$  [minutes]  
In more convenient units:  
Event began at DOY 115 10:50 +/- 0.650E+00 [minutes]

Origin defined at DOY115 11:50

RADIAL INFORMATION:

RADIAL VELOCITY = 368. +/- 10. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.291E+01 +/- 0.180E-01 [solar radii]  
c(2) = 0.317E-01 +/- 0.902E-03 [radii/min]  
c(2) = 0.368E+03 +/- 0.105E+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)= 0.20735E-01 [radii] see Bevington pg. 114  
error in c(2)= 0.10415E-02 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.6335E-05 +/- 0.1193E-04 [radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 136. +/- 1. [degrees]  
a(2) = 0.218E-01 +/- 0.410E-01 [degrees/min]  
a(2) = 0.633E-05 +/- 0.119E-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 RADIAL velocity at 11:51 = 368. km/sec

The RADIAL velocity at 11:53 = 368. km/sec

The RADIAL velocity at 12:13 = 368. km/sec

The RADIAL velocity at 12:15 = 368. km/sec

The RADIAL velocity at 12:17 = 368. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.40  
Standard Deviation in start time measurement = 0.113E+02  
Error in time = 0.14301E+01 using best fit method  
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.515E-03  
Reduced Chi Squared = 0.236E-02  
Chi Squared = 0.707E-02  
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.998E+00  
The probability that no LINEAR correlation exists between the variables = 0.7788  
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]



\*\*\*\*\*  
This is a 2 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	day	time	radii	radius	angle	error in angle	error in angle	datatype
1980	115	11:51:40	2.95 +/- 0.15		135.0 +/- 0.5			SMM
1980	115	11:53:47	3.05 +/- 0.15		138.0 +/- 1.0			SMM
1980	115	12:13:57	3.70 +/- 0.15		136.0 +/- 1.0			SMM
1980	115	12:15:29	3.73 +/- 0.15		136.0 +/- 1.0			SMM
1980	115	12:17:14	3.75 +/- 0.15		136.0 +/- 1.0			SMM

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

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

Event began at t = 0 + -0.263E+02 +/- 0.570E+00 [minutes]  
In more convenient units:  
Event began at DOY 115 11:24 +/- 0.570E+00 [minutes]

Origin defined at DOY115 11:50

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.276E+00 +/- 0.147E-01 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.286E+01 +/- 0.328E-02 [solar radii]  
c(2) = 0.520E-01 +/- 0.108E-02 [radii/min]  
c(2) = 0.604E+03 +/- 0.126E+02 [km/sec]  
c(3) = -0.714E-03 +/- 0.380E-04 [radii/min\*\*2]  
c(3) = -0.276E+00 +/- 0.147E-01 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.40227E-02 [radii] Bevington pg 154 (8-30)  
Exact error in c(1) = 0.10474E-02 [radii] Bevington pg 154 (8-28)  
Approximate error in c(2) = 0.13280E-02 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.39861E-03 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.46538E-04 [radii/min\*\*2] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.14487E-04 [radii/min\*\*2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION = -0.2321E-06 +/- 0.1677E-06 [radians/sec\*\*2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 134. +/- 1. [degrees]  
a(2) = 0.686E+00 +/- 0.481E+00 [degrees/min]  
a(2) = 0.199E-03 +/- 0.140E-03 [rad/sec]  
a(3) = -0.239E-01 +/- 0.173E-01 [degrees/min\*\*2]  
a(3) = -0.232E-06 +/- 0.168E-06 [rad/sec\*\*2]

The RADIAL velocity at 11:51 = 576. km/sec  
The RADIAL velocity at 11:53 = 541. km/sec  
The RADIAL velocity at 12:13 = 207. km/sec  
The RADIAL velocity at 12:15 = 181. km/sec  
The RADIAL velocity at 12:17 = 152. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.40  
Standard Deviation in start time measurement = 0.113E+02  
Value of reduced Chi Squared returned from nllst2 = 0.578E-05  
Reduced Chi Squared = 0.337E-04  
Chi Squared = 0.673E-04  
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 = 0.9984E+00  
The correlation between the data and the time\*\*2 term = 0.9895E+00  
The correlation between the data and the complete equation of motion=0.1000E+01  
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]