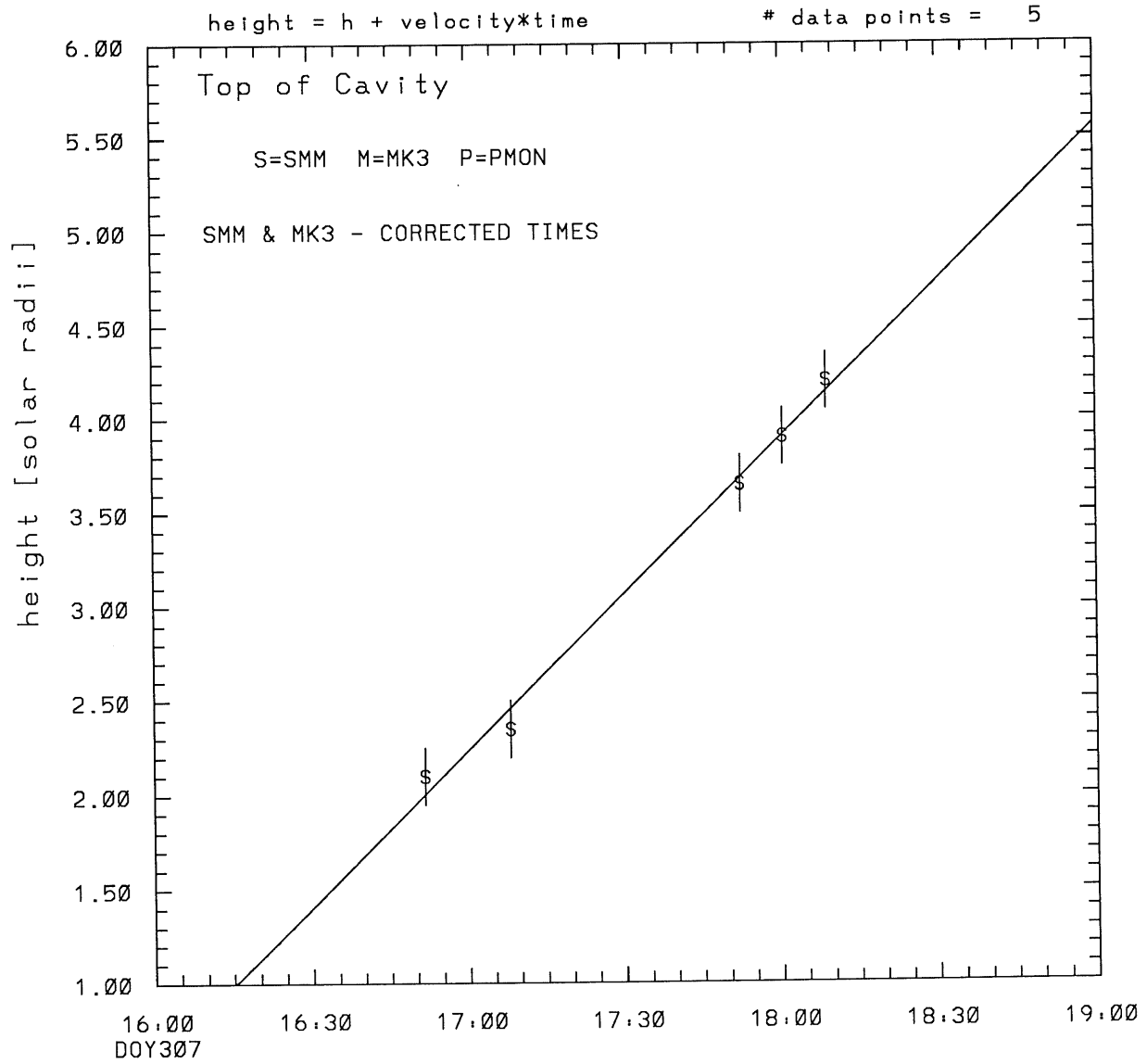
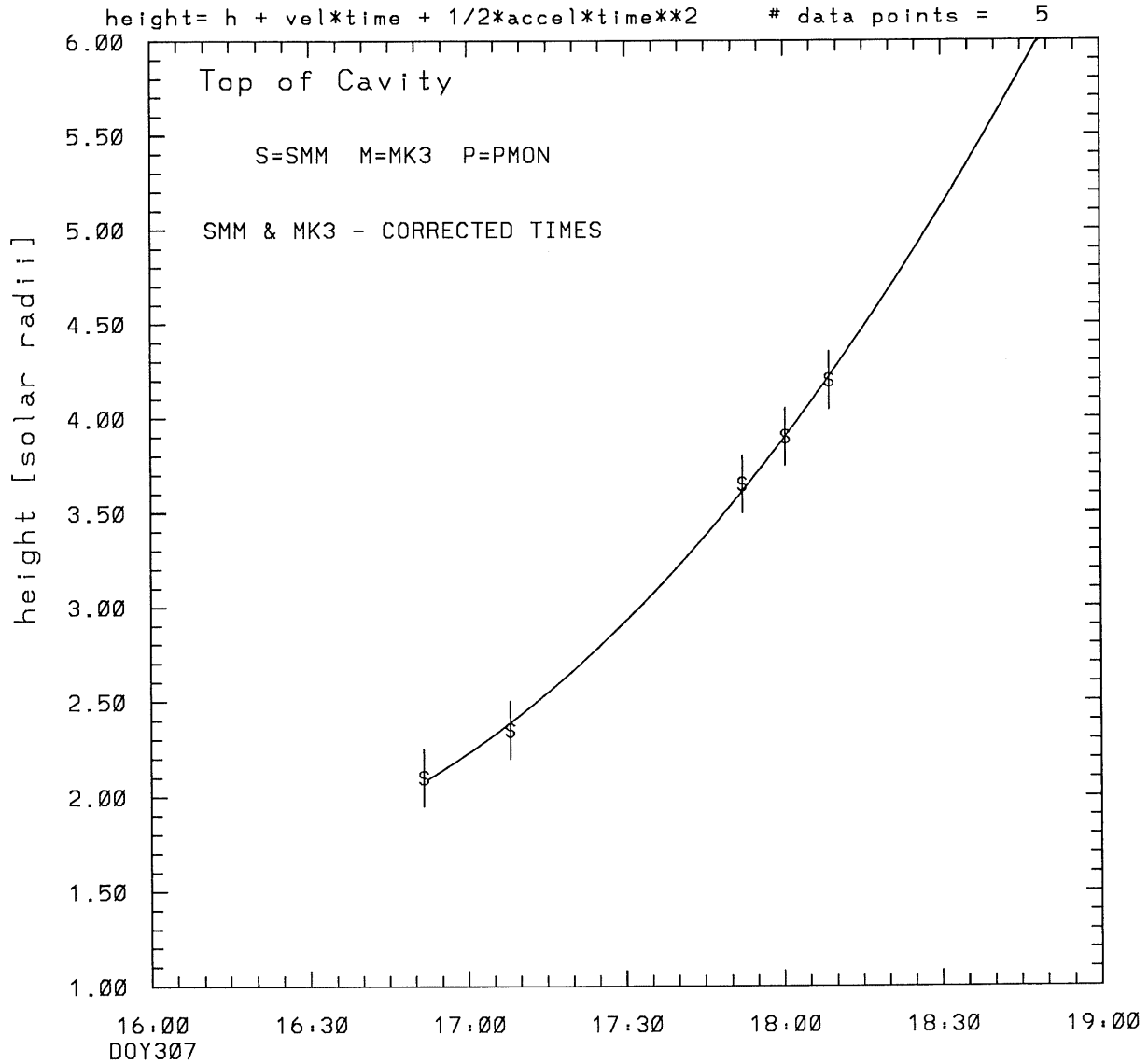


SMM C/P 1987 DOY307 115 +/- 0 degrees



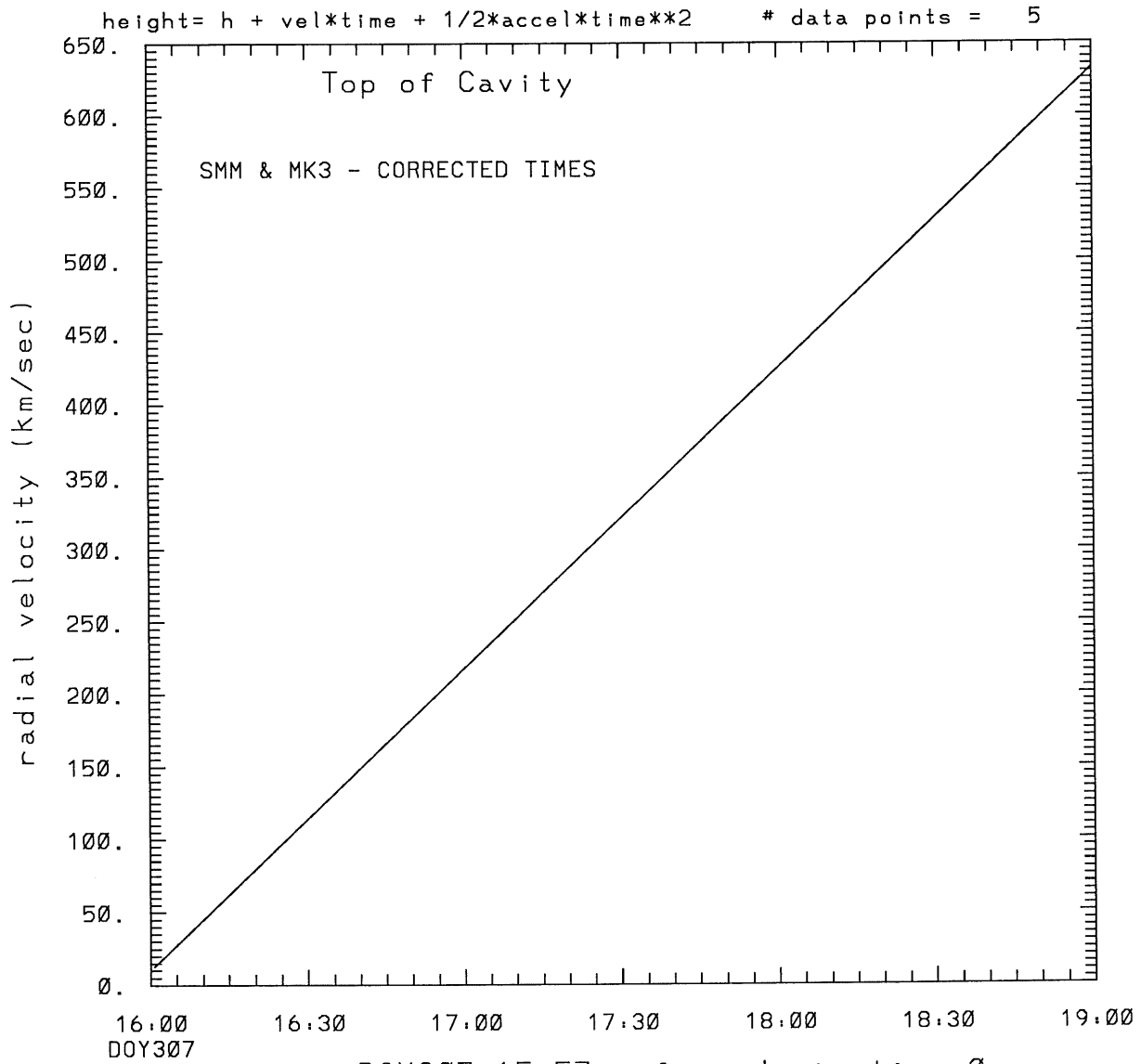
tstart=DOY307 16:15 +/- 2.1 [min.]  
radial velocity= 321. +/- 14. [km/sec]

SMM C/P 1987 DOY307 115 +/- 0 degrees



tstart=DOY307 15:57 from derivative=0  
Event begins at 1.64 Solar Radii  
radial acceleration =  $0.0576 \pm 0.0137$  [km/sec\*\*2]

SMM C/P 1987 DOY307 115 +/- 0 degrees



tstart=DOY307 15:57 from derivative=0  
Event begins at 1.64 Solar Radii  
radial acceleration=0.576E-01 km/sec\*\*2

\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	day	time	error in radii	error in radius	error in angle	error in angle	datatype
1987	307	16:51:31	2.10 +/- 0.15		115.0 +/- 0.5		SMM
1987	307	17: 8: 2	2.35 +/- 0.15		115.0 +/- 0.5		SMM
1987	307	17:52:10	3.65 +/- 0.15		115.0 +/- 1.0		SMM
1987	307	18: 0:23	3.90 +/- 0.15		115.0 +/- 1.0		SMM
1987	307	18: 8:44	4.20 +/- 0.15		115.0 +/- 1.0		SMM

\*\*\*\*\*

Structure being measured:

Top of Cavity

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at t = 0 + 0.152E+02 +/- 0.206E+01 [minutes]

In more convenient units:

Event began at DOY 307 16:15 +/- 0.206E+01 [minutes]

Origin defined at DOY307 16: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 321. +/- 14. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.579E+00 +/- 0.119E+00 [solar radii]  
 c(2) = 0.277E-01 +/- 0.118E-02 [radii/min]  
 c(2) = 0.321E+03 +/- 0.137E+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)= 0.13774E+00 [radii] see Bevington pg. 114

error in c(2)= 0.13648E-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) = 115. +/- 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 16:51 = 0.000E+00 km/sec

The TOTAL velocity at 16:51 = 321. km/sec

The TANGENTIAL velocity at 17: 8 = 0.000E+00 km/sec

The TOTAL velocity at 17: 8 = 321. km/sec

The TANGENTIAL velocity at 17:52 = 0.000E+00 km/sec

The TOTAL velocity at 17:52 = 321. km/sec

The TANGENTIAL velocity at 18: 0 = 0.000E+00 km/sec

The TOTAL velocity at 18: 0 = 321. km/sec

The TANGENTIAL velocity at 18: 8 = 0.000E+00 km/sec

The TOTAL velocity at 18: 8 = 321. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.95

Standard Deviation in start time measurement = 0.306E+02

Error in time = 0.58482E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.655E-02

Reduced Chi Squared = 0.183E-01

Chi Squared = 0.549E-01

The probability for exceeding chi square = 0.999E+00

The correlation coefficient = 0.996E+00

The probability that no LINEAR correlation exists between the variables = 0.2620E-03

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

\*\*\*\*\*

This is a 2 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	error in radii	error in radius	angle	angle	datatype
1987	307	16:51:31	2.10 +/-	0.15	115.0 +/-	0.5	SMM
1987	307	17: 8: 2	2.35 +/-	0.15	115.0 +/-	0.5	SMM
1987	307	17:52:10	3.65 +/-	0.15	115.0 +/-	1.0	SMM
1987	307	18: 0:23	3.90 +/-	0.15	115.0 +/-	1.0	SMM
1987	307	18: 8:44	4.20 +/-	0.15	115.0 +/-	1.0	SMM

\*\*\*\*\*

Structure being measured:

Top of Cavity

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

tstart=DOY307 15:57 from derivative = 0

Event begins at 1.64 Solar Radii

Origin defined at DOY307 16: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.576E-01 +/- 0.137E-01 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.164E+01 +/- 0.257E+00 [solar radii]  
 c(2) = 0.896E-03 +/- 0.638E-02 [radii/min]  
 c(2) = 0.104E+02 +/- 0.740E+02 [km/sec]  
 c(3) = 0.149E-03 +/- 0.353E-04 [radii/min\*\*2]  
 c(3) = 0.576E-01 +/- 0.137E-01 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.31434E+00 [radii] Bevington pg 154 (8-30)  
 Exact error in c(1) = 0.12288E+00 [radii] Bevington pg 154 (8-28)  
 Approximate error in c(2) = 0.78092E-02 [radii/min] Bevington pg 154 (8-30)  
 Exact error in c(2) = 0.31829E-02 [radii/min] Bevington pg 154 (8-28)  
 Approximate error in c(3) = 0.43272E-04 [radii/min\*\*] Bevington pg 154 (8-30)  
 Exact error in c(3) = 0.18059E-04 [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) = 115. +/- 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 16:51 = 0.000E+00 km/sec

The TOTAL velocity at 16:51 = 188. km/sec

The TANGENTIAL velocity at 17: 8 = 0.000E+00 km/sec

The TOTAL velocity at 17: 8 = 245. km/sec

The TANGENTIAL velocity at 17:52 = 0.000E+00 km/sec

The TOTAL velocity at 17:52 = 398. km/sec

The TANGENTIAL velocity at 18: 0 = 0.000E+00 km/sec

The TOTAL velocity at 18: 0 = 426. km/sec

The TANGENTIAL velocity at 18: 8 = 0.000E+00 km/sec

The TOTAL velocity at 18: 8 = 455. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.95

Standard Deviation in start time measurement = 0.306E+02

Value of reduced Chi Squared returned from nllst2 = 0.126E-02

Reduced Chi Squared = 0.493E-02

Chi Squared = 0.986E-02

The probability for exceeding chi square = 0.999E+00

For a second order fit 3 correlation coefficients are given:

(Using equation of motion:  $r = a + bt + at^{**2}$ )

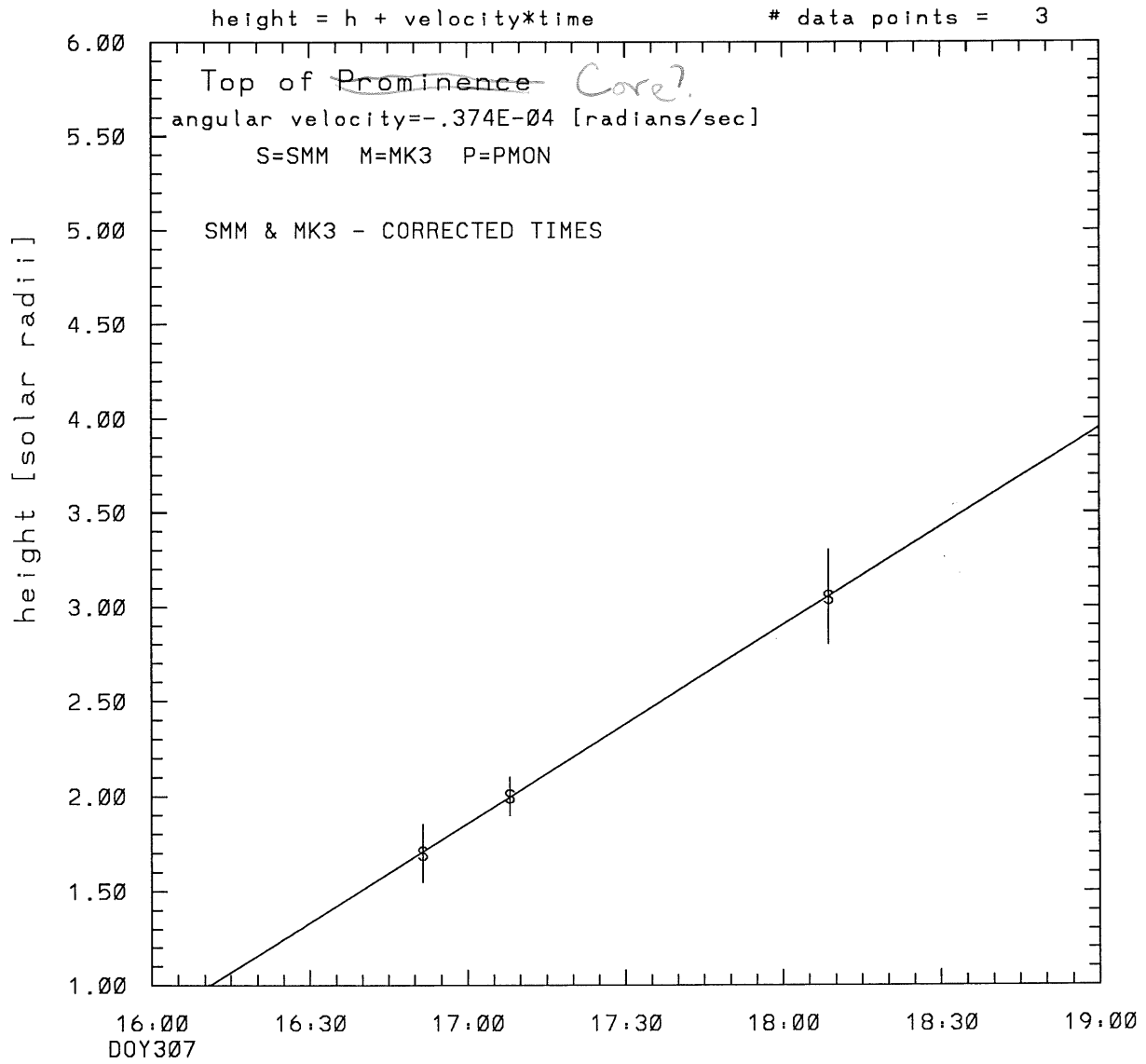
The correlation between the data and the term linear in time = 0.9964E+00

The correlation between the data and the time\*\*2 term = 0.9995E+00

The correlation between the data and the complete equation of motion = 0.9990E+00

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

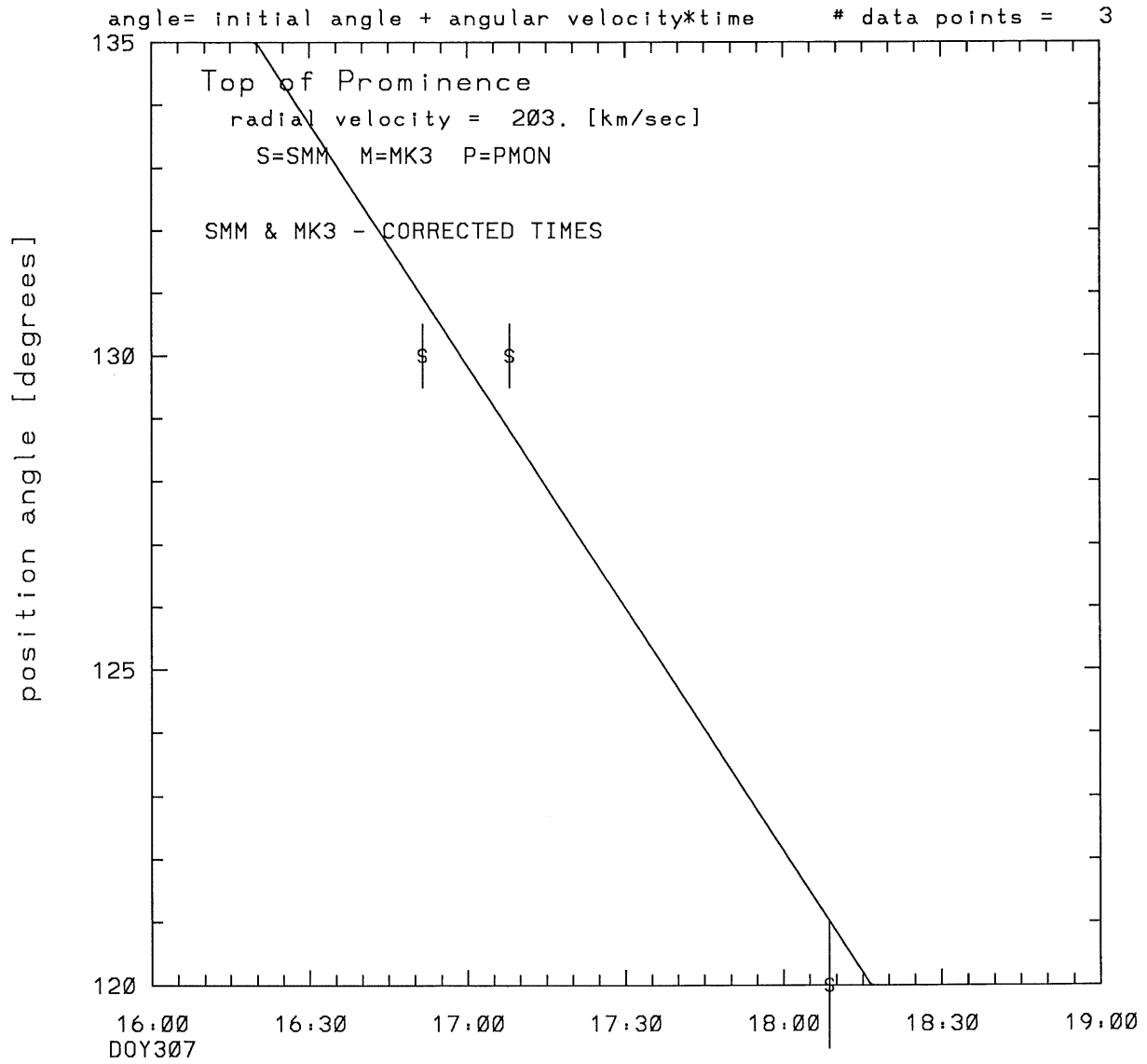
SMM C/P 1987 DOY307 126 +/- 6 degrees



tstart=DOY307 16:11 +/- 0.1 [min.]  
radial velocity= 203. +/- 2. [km/sec]

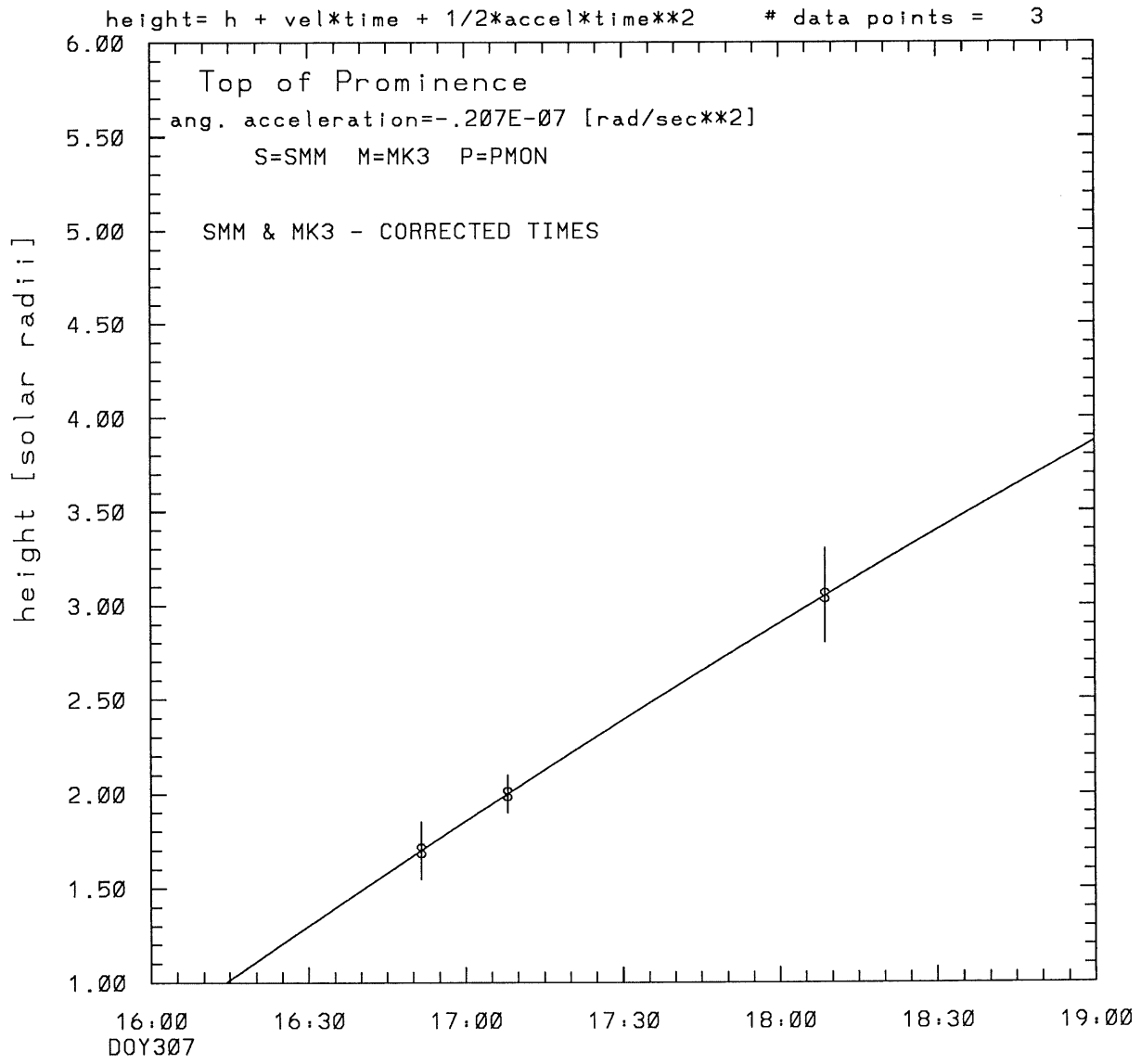


SMM C/P 1987 DOY307 126 +/- 6 degrees



tstart=DOY307 16:11 +/- 0.1 [min.]  
angular velocity=-.374E-04 +/- 0.949E-05 [rad/sec]

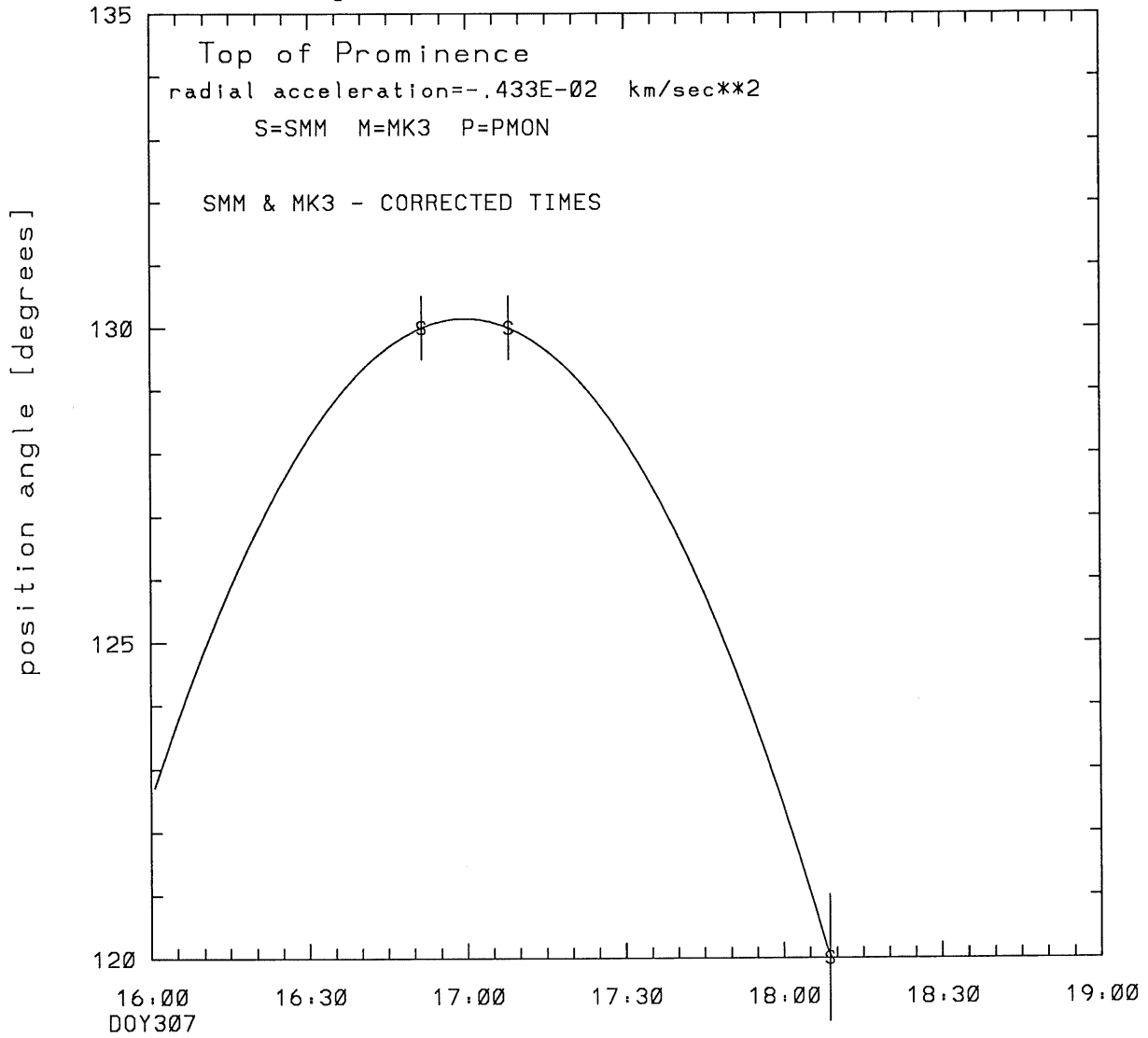
SMM C/P 1987 DOY307 126 +/- 6 degrees



tstart = DOY307 16:14 +/- 0.0 [min.]  
radial acceleration =  $-0.0043 +/- 0.0000$  [km/sec\*\*2]

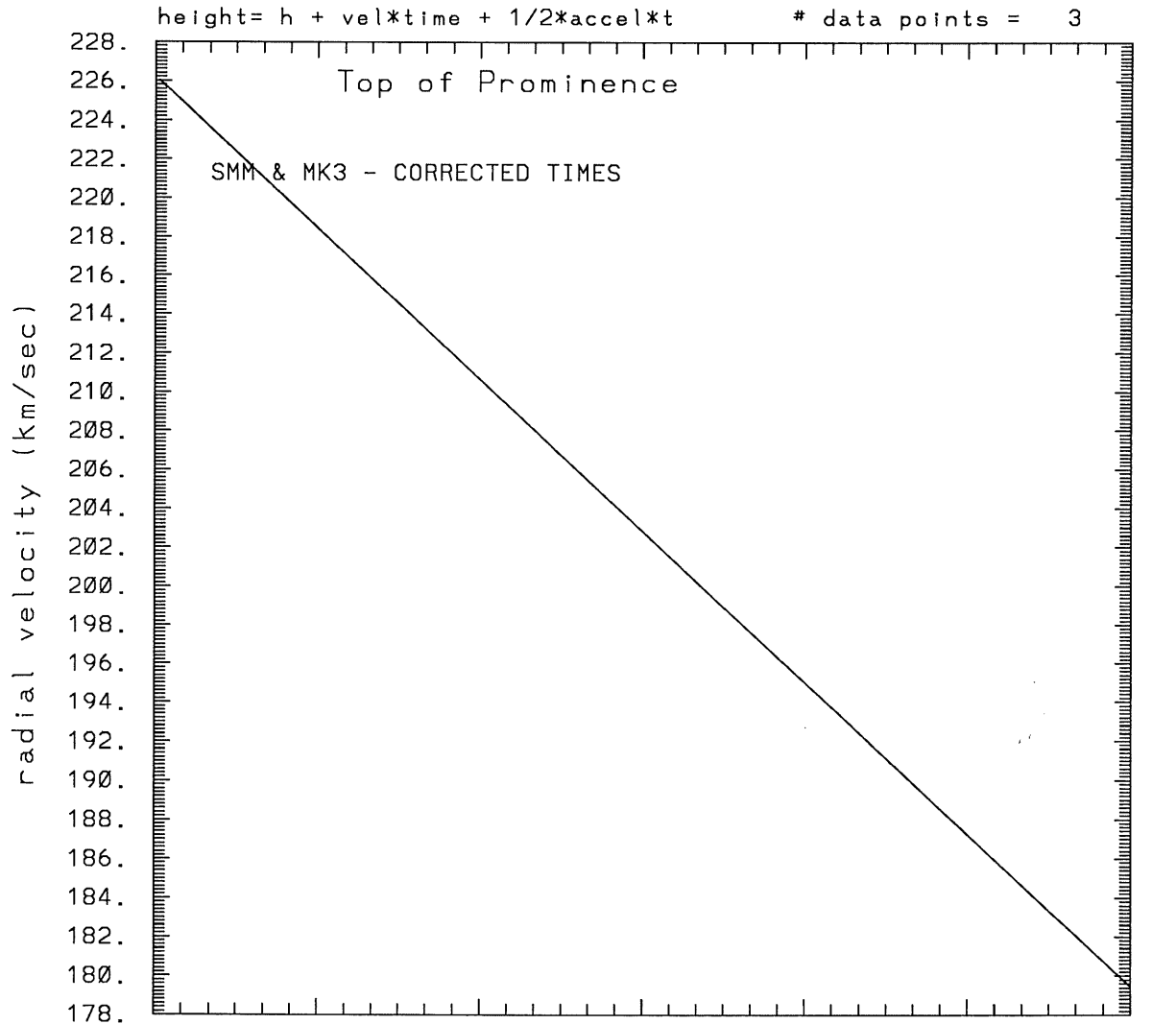
SMM C/P 1987 DOY307 126 +/- 6 degrees

angle= initial angle + angular velocity\*time  
+ 1/2 angular acceleration\*time\*\*2 # data points = 3



tstart=DOY307 16.14 +/- 0.0 [min.]  
angular acceleration=-.207E-07 +/- 0.000E+00 [rad/sec\*\*2]

SMM C/P 1987 DOY307 126 +/- 6 degrees



16:00  
DOY307

16:30

17:00

17:30

18:00

18:30

19:00

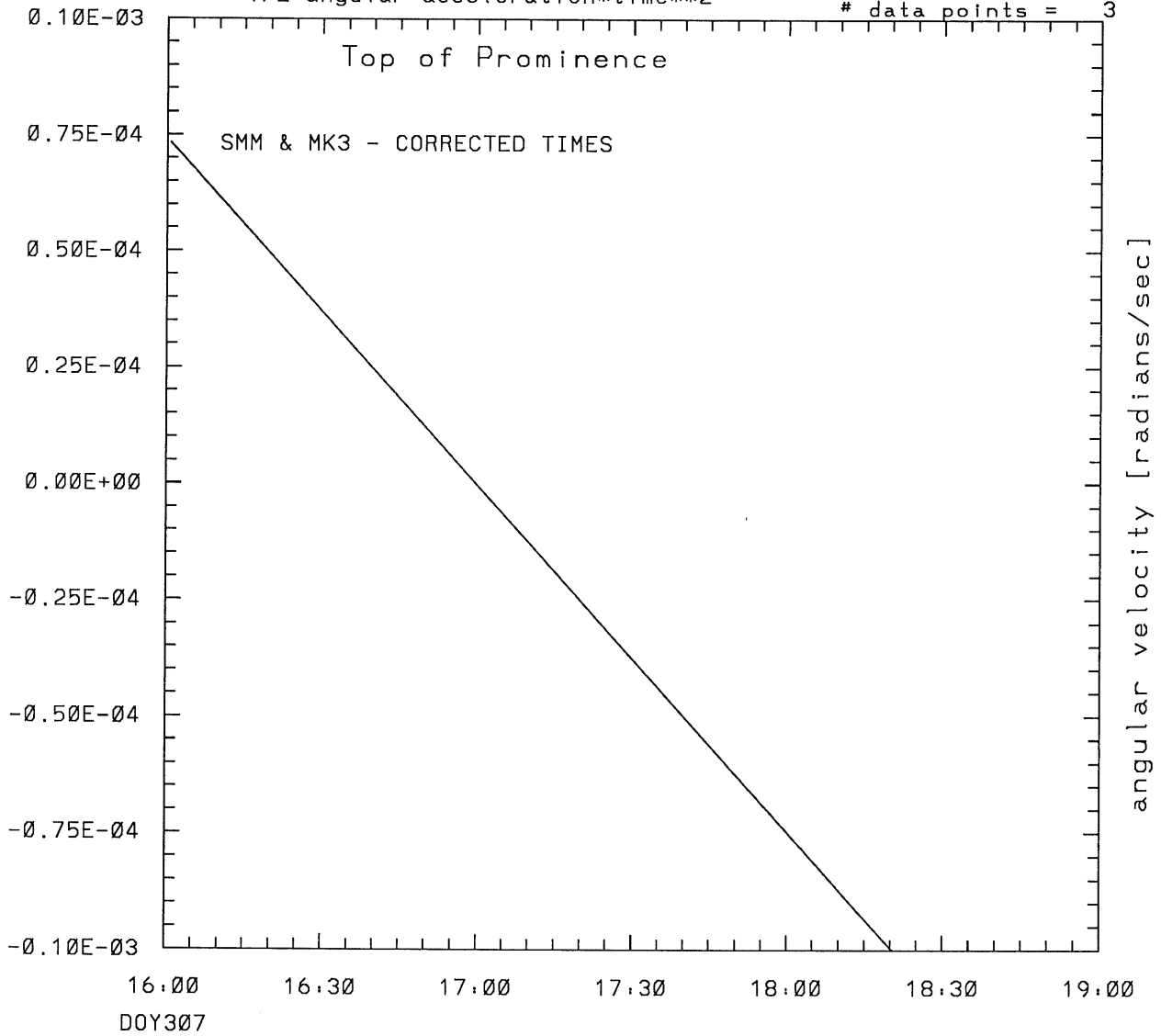
tstart=DOY307 16:14 +/- 0.0 [min.]

radial acceleration=-.433E-02 km/sec\*\*2

SMM C/P 1987 DOY307 126 +/- 6 degrees

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

# data points = 3



DOY307

tstart=DOY307 16:14 +/- 0.0 [min.]

angular acceleration=-.207E-07 +/-

0.000E+00 [rad/sec\*\*2]

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

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

year	doy	time	radii	radius	error in angle	error in angle	datatype
1987	307	16:51:31	1.70 +/-	0.15	130.0 +/-	0.5	SMM
1987	307	17: 8: 2	2.00 +/-	0.10	130.0 +/-	0.5	SMM
1987	307	18: 8:44	3.05 +/-	0.25	120.0 +/-	1.0	SMM

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

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

START TIME:

Event began at t = 0 + 0.110E+02 +/- 0.138E+00 [minutes]  
In more convenient units:  
Event began at DOY 307 16:11 +/- 0.138E+00 [minutes]

Origin defined at DOY307 16: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 203. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.808E+00 +/- 0.133E-01 [solar radii]  
c(2) = 0.175E-01 +/- 0.183E-03 [radii/min]  
c(2) = 0.203E+03 +/- 0.212E+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)= 0.15833E-01 [radii] see Bevington pg. 114  
error in c(2)= 0.17755E-03 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.3736E-04 +/- 0.9491E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 138. +/- 2. [degrees]  
a(2) = -0.128E+00 +/- 0.326E-01 [degrees/min]  
a(2) = -0.374E-04 +/- 0.949E-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 16:51 = 203. km/sec

The RADIAL velocity at 17: 8 = 203. km/sec

The RADIAL velocity at 18: 8 = 203. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.71  
Standard Deviation in start time measurement = 0.332E+02  
Error in time = 0.58477E+00 using best fit method  
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.441E-04  
Reduced Chi Squared = 0.185E-03  
Chi Squared = 0.185E-03  
The probability for exceeding chi square = 0.995E+00

The correlation coefficient = 0.100E+01  
The probability that no LINEAR correlation exists between the variables = 0.56211  
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

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

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

year	day	time	radii	radius	error in angle	error in angle	datatype
1987	307	16:51:31	1.70 +/-	0.15	130.0 +/-	0.5	SMM
1987	307	17: 8: 2	2.00 +/-	0.10	130.0 +/-	0.5	SMM
1987	307	18: 8:44	3.05 +/-	0.25	120.0 +/-	1.0	SMM

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

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

START TIME:

Event began at t = 0 + 0.142E+02 +/- 0.000E+00 [minutes]  
In more convenient units:  
Event began at DOY 307 16:14 +/- 0.000E+00 [minutes]

Origin defined at DOY307 16: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.433E-02 +/- 0.110E-06 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.725E+00 +/- 0.216E-05 [solar radii]  
c(2) = 0.195E-01 +/- 0.523E-07 [radii/min]  
c(2) = 0.226E+03 +/- 0.607E-03 [km/sec]  
c(3) = -0.112E-04 +/- 0.285E-09 [radii/min\*\*2]  
c(3) = -0.433E-02 +/- 0.110E-06 [km/sec\*\*2]

ANGULAR INFORMATION:

ANGULAR ACCELERATION= -0.2069E-07 +/- 0.0000E+00[radians/sec\*\*2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 123. +/- 0. [degrees]  
a(2) = 0.255E+00 +/- 0.000E+00 [degrees/min]  
a(2) = 0.742E-04 +/- 0.000E+00 [rad/sec]  
a(3) = -0.213E-02 +/- 0.000E+00 [degrees/min\*\*2]  
a(3) = -0.207E-07 +/- 0.000E+00 [rad/sec\*\*2]

The RADIAL velocity at 16:51 = 213. km/sec

The RADIAL velocity at 17: 8 = 209. km/sec

The RADIAL velocity at 18: 8 = 193. km/sec

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



Number data points = number of coefficients. No error analysis is possible.

Correlation coefficient is not computable!