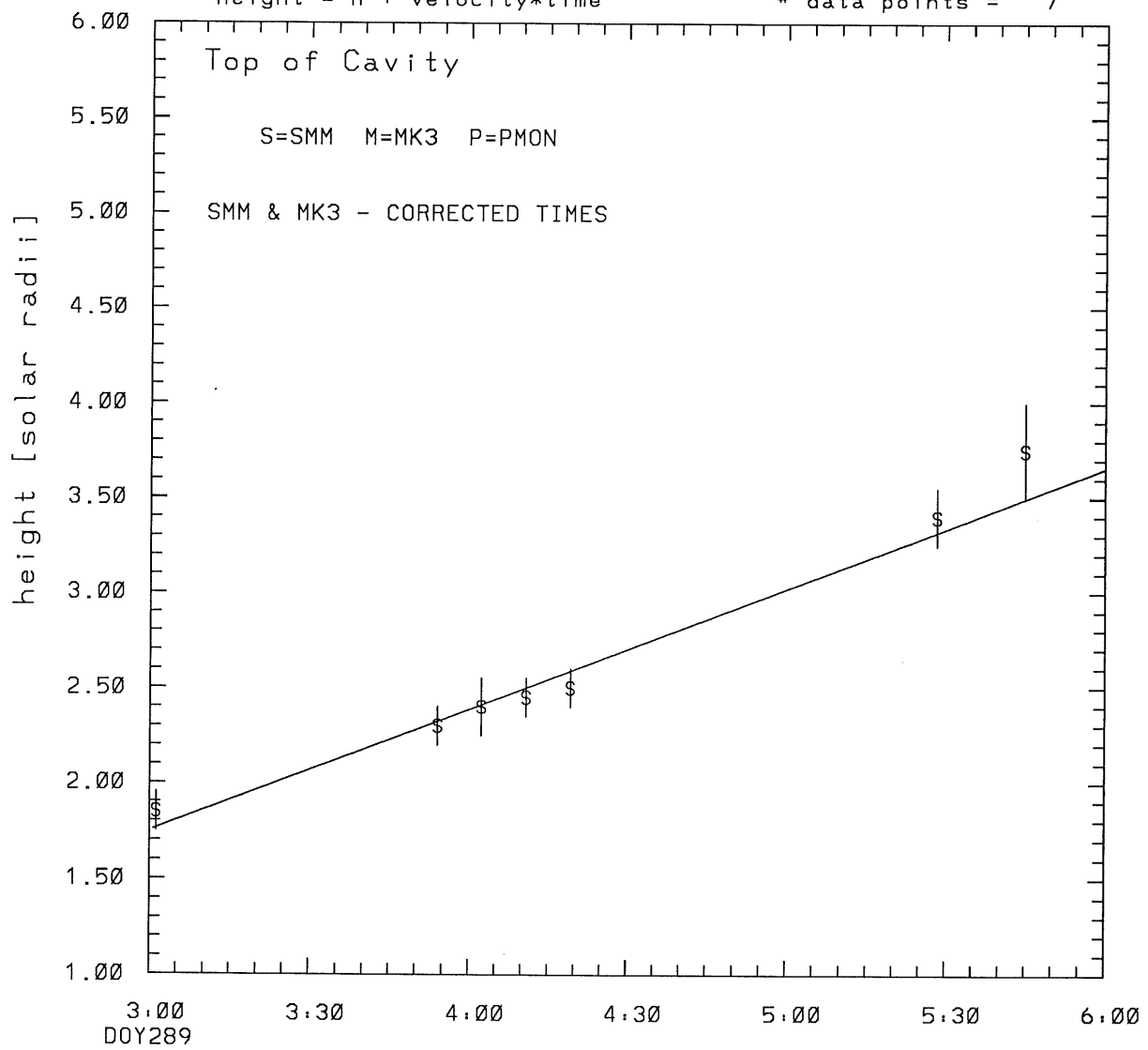


SMM C/P 1987 DOY289 70 +/- 0 degrees

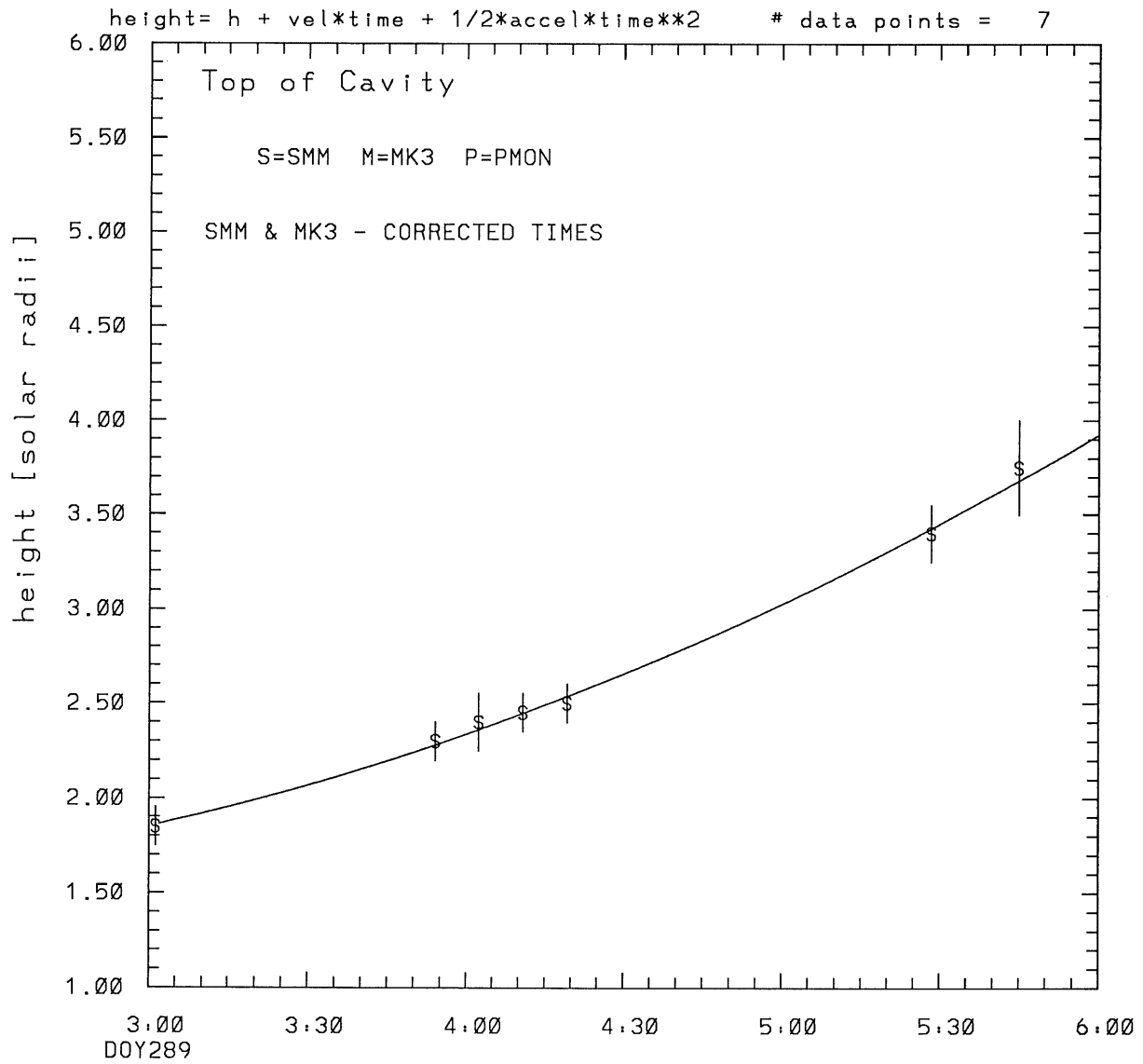
height = h + velocity*time

data points = 7



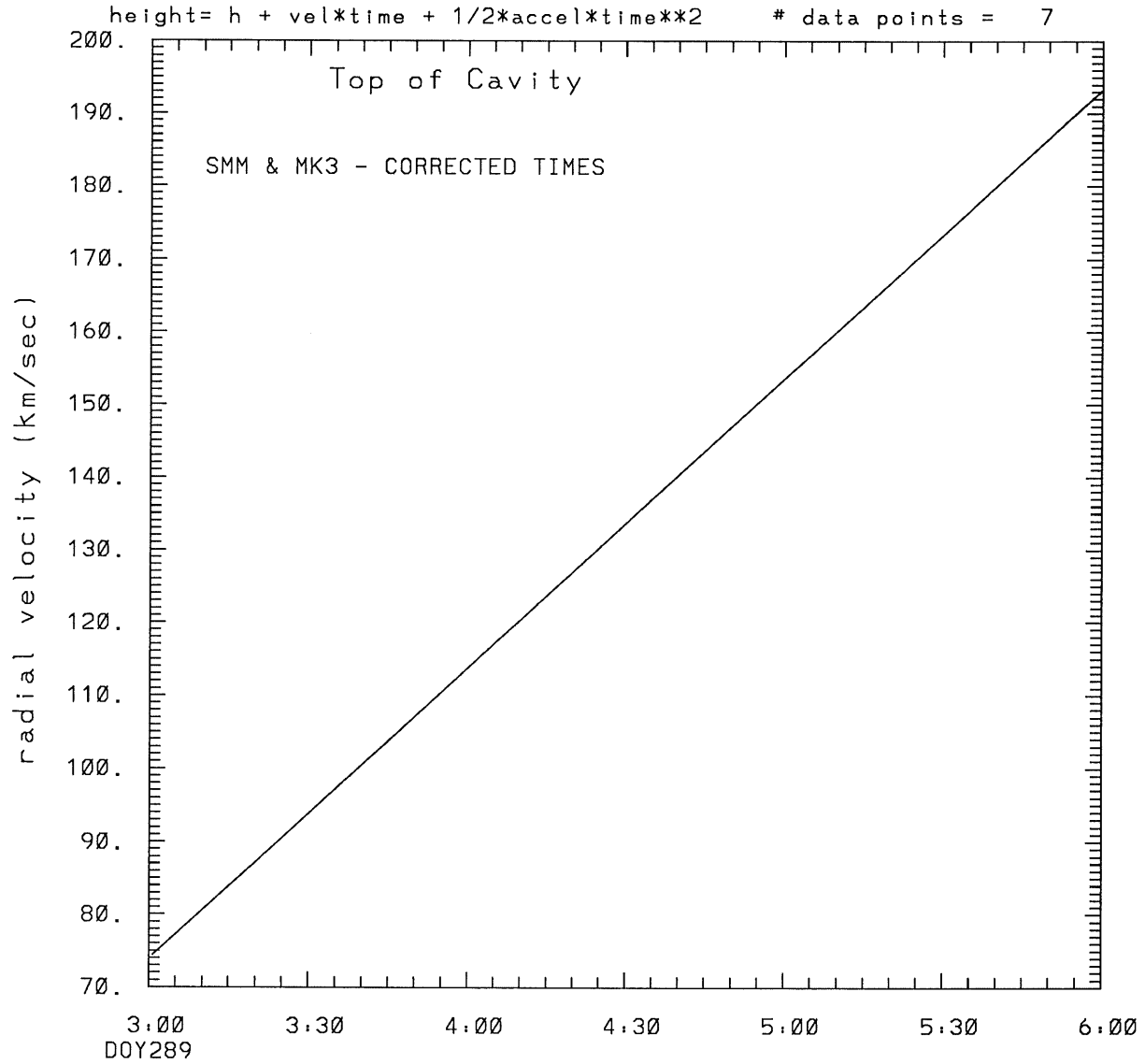
tstart=DOY289 1:51 +/- 2.2 [min.]
radial velocity= 123. +/- 9. [km/sec]

SMM C/P 1987 DOY289 70 +/- 0 degrees



tstart=DOY289 1.9 from derivative=0
Event begins at 1.50 Solar Radii
radial acceleration = 0.0110 +/- 0.0018 [km/sec**2]

SMM C/P 1987 DOY289 70 +/- 0 degrees



tstart=DOY289 1: 9 from derivative=0
Event begins at 1.50 Solar Radii
radial acceleration=0.110E-01 km/sec**2

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in	angle	error in	angle	datatype
1987	289	3: 1:11	1.85	+/- 0.10	70.0	+/- 0.5	SMM		
1987	289	3:54: 8	2.30	+/- 0.10	70.0	+/- 0.5	SMM		
1987	289	4: 2:24	2.40	+/- 0.15	70.0	+/- 0.5	SMM		
1987	289	4:10:50	2.45	+/- 0.10	70.0	+/- 0.5	SMM		
1987	289	4:19:16	2.50	+/- 0.10	70.0	+/- 0.5	SMM		
1987	289	5:28:20	3.40	+/- 0.15	70.0	+/- 1.0	SMM		
1987	289	5:44:54	3.75	+/- 0.25	70.0	+/- 1.0	SMM		

Structure being measured:
Top of Cavity

OUTPUT:

START TIME:

Event began at $t = 0 + -0.706E+02 +/- 0.225E+01$ [minutes]
In more convenient units:
Event began at DOY 289 1:51 +/- 0.225E+01 [minutes]

Origin defined at DOY289 3: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 123. +/- 9. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.175E+01 +/- 0.589E-01$ [solar radii]
 $c(2) = 0.106E-01 +/- 0.763E-03$ [radii/min]
 $c(2) = 0.123E+03 +/- 0.885E+01$ [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 $c(1) = 0.94877E-01$ [radii] see Bevington pg. 114
error in $c(2) = 0.96746E-03$ [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) = 70. +/- 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 3: 1 = 0.000E+00 km/sec

The TOTAL velocity at 3: 1 = 123. km/sec

The TANGENTIAL velocity at 3:54 = 0.000E+00 km/sec

The TOTAL velocity at 3:54 = 123. km/sec

The TANGENTIAL velocity at 4: 2 = 0.000E+00 km/sec

The TOTAL velocity at 4: 2 = 123. km/sec

The TANGENTIAL velocity at 4:10 = 0.000E+00 km/sec

The TOTAL velocity at 4:10 = 123. km/sec

The TANGENTIAL velocity at 4:19 = 0.000E+00 km/sec

The TOTAL velocity at 4:19 = 123. km/sec

The TANGENTIAL velocity at 5:28 = 0.000E+00 km/sec

The TOTAL velocity at 5:28 = 123. km/sec

The TANGENTIAL velocity at 5:44 = 0.000E+00 km/sec

The TOTAL velocity at 5:44 = 123. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.67

Standard Deviation in start time measurement = 0.522E+02

Error in time = 0.28195E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.736E-02

Reduced Chi Squared = 0.109E+00

Chi Squared = 0.546E+00

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.989E+00

The probability that no LINEAR correlation exists between the variables = 0.2455E-04

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

This is a 2 order run

INPUT:

year	day	time	radii	radius	error in	angle	angle	datatype
1987	289	3: 1:11	1.85	+/- 0.10	70.0	+/- 0.5	SMM	
1987	289	3:54: 8	2.30	+/- 0.10	70.0	+/- 0.5	SMM	
1987	289	4: 2:24	2.40	+/- 0.15	70.0	+/- 0.5	SMM	
1987	289	4:10:50	2.45	+/- 0.10	70.0	+/- 0.5	SMM	
1987	289	4:19:16	2.50	+/- 0.10	70.0	+/- 0.5	SMM	
1987	289	5:28:20	3.40	+/- 0.15	70.0	+/- 1.0	SMM	
1987	289	5:44:54	3.75	+/- 0.25	70.0	+/- 1.0	SMM	

Structure being measured:

Top of Cavity

OUTPUT:

START TIME:

tstart=DOY289 1: 9 from derivative = 0

Event begins at 1.50 Solar Radii

Origin defined at DOY289 3: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.110E-01 +/- 0.176E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.185E+01 +/- 0.271E-01 [solar radii]
c(2) = 0.637E-02 +/- 0.729E-03 [radii/min]
c(2) = 0.739E+02 +/- 0.845E+01 [km/sec]
c(3) = 0.286E-04 +/- 0.455E-05 [radii/min**2]
c(3) = 0.110E-01 +/- 0.176E-02 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.48042E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.41869E-02 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.12151E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.12704E-03 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.65131E-05 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.11225E-05 [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) = 70. +/- 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 3: 1 = 0.000E+00 km/sec

The TOTAL velocity at 3: 1 = 75. km/sec

The TANGENTIAL velocity at 3:54 = 0.000E+00 km/sec

The TOTAL velocity at 3:54 = 110. km/sec

The TANGENTIAL velocity at 4: 2 = 0.000E+00 km/sec

The TOTAL velocity at 4: 2 = 115. km/sec

The TANGENTIAL velocity at 4:10 = 0.000E+00 km/sec

The TOTAL velocity at 4:10 = 121. km/sec

The TANGENTIAL velocity at 4:19 = 0.000E+00 km/sec

The TOTAL velocity at 4:19 = 126. km/sec

The TANGENTIAL velocity at 5:28 = 0.000E+00 km/sec

The TOTAL velocity at 5:28 = 172. km/sec

The TANGENTIAL velocity at 5:44 = 0.000E+00 km/sec

The TOTAL velocity at 5:44 = 183. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.67

Standard Deviation in start time measurement = 0.522E+02

Value of reduced Chi Squared returned from nllst2 = 0.992E-03

Reduced Chi Squared = 0.129E-01

Chi Squared = 0.515E-01

The probability for exceeding chi square = 0.100E+01

For a second order fit 3 correlation coefficients are given:

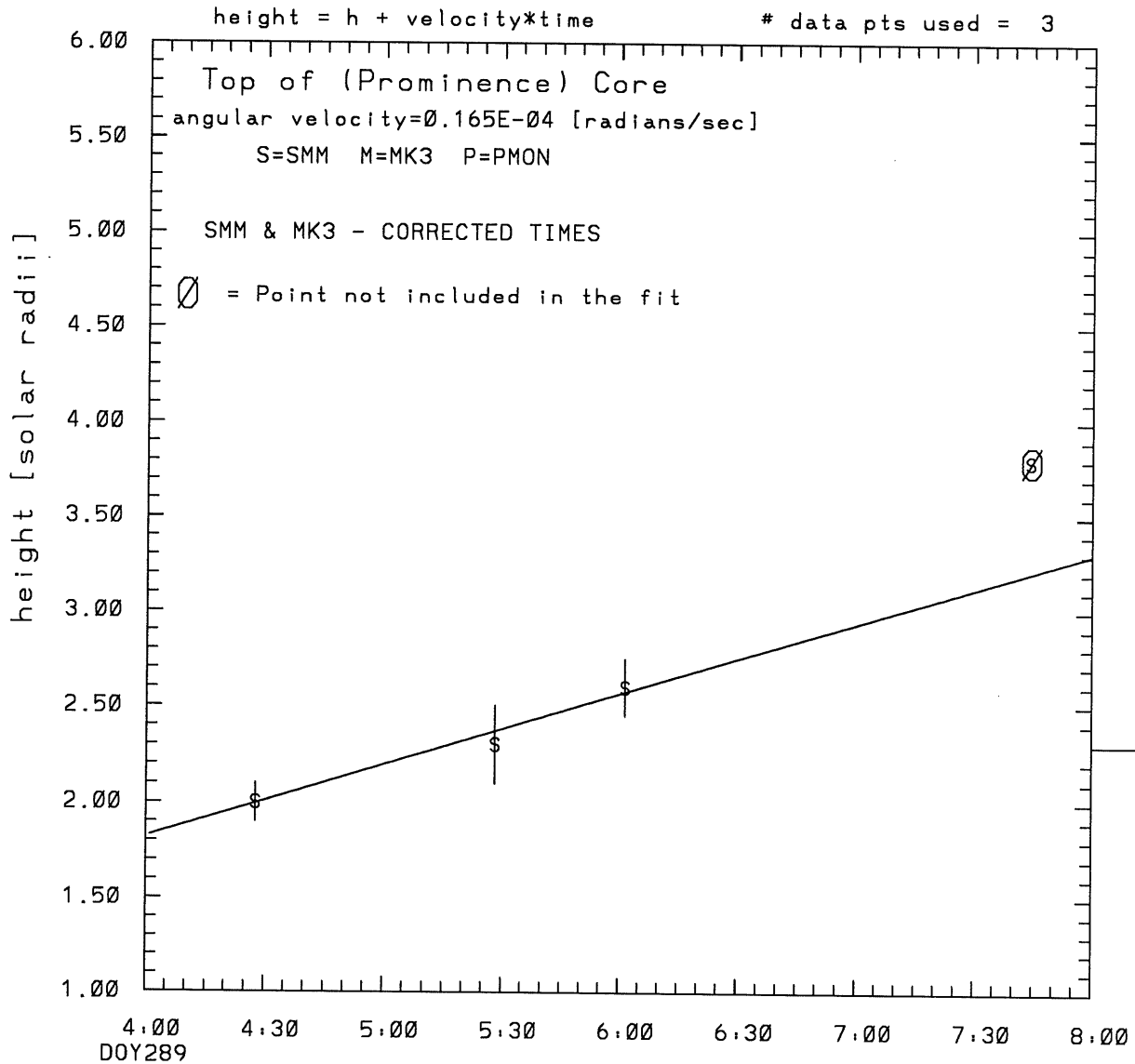
(Using equation of motion: $r = a + bt + at^{**2}$)

The correlation between the data and the term linear in time = 0.8751E+00

The correlation between the data and the time**2 term = 0.7756E+00

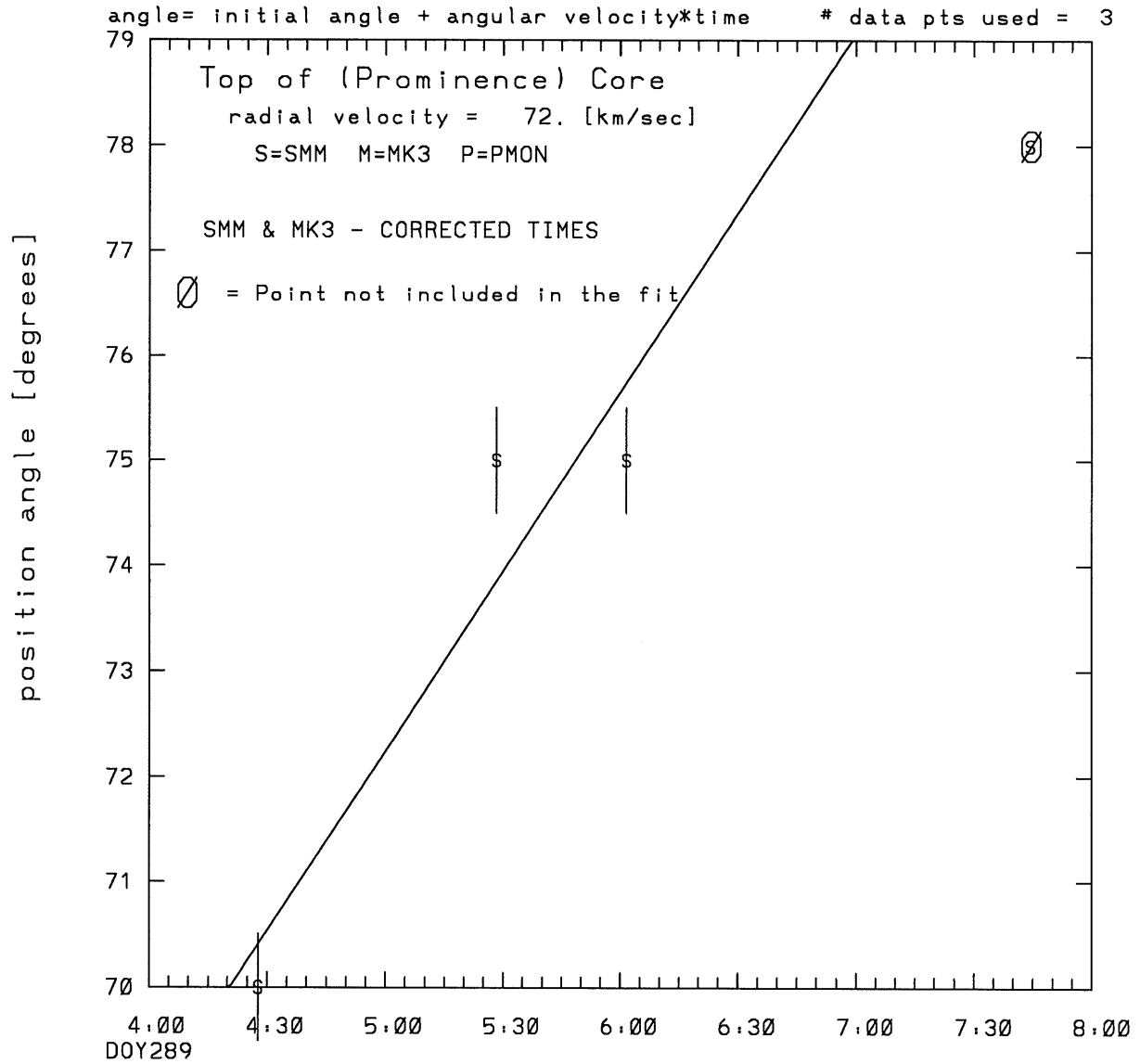
The correlation between the data and the complete equation of motion = 0.9886E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

SMM C/P 1987 DOY289 73 +/- 3 degrees



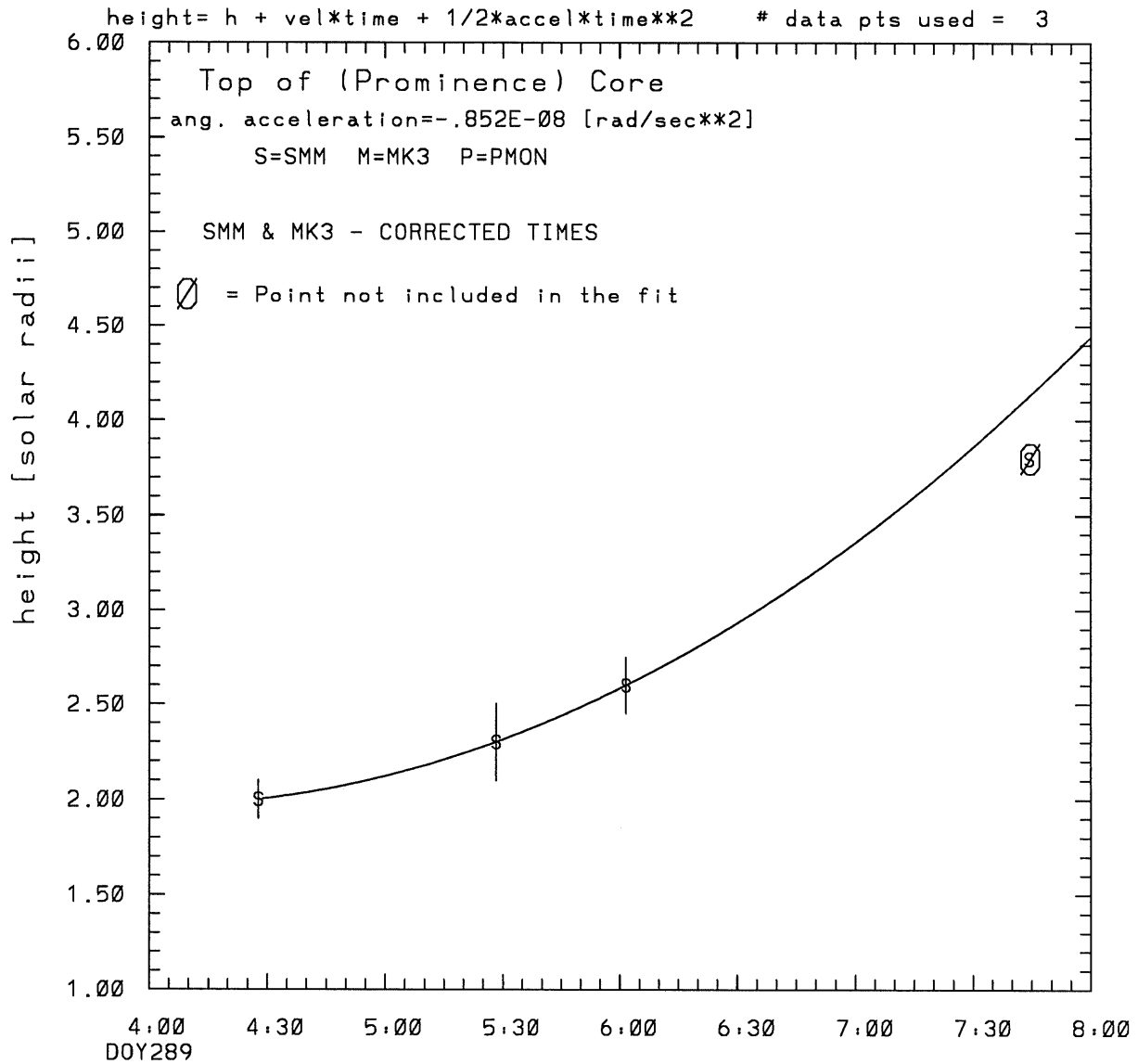
tstart=DOY289 1.49 +/- 4.1 [min.]
radial velocity= 72. +/- 5. [km/sec]

SMM C/P 1987 DOY289 73 +/- 3 degrees



tstart=DOY289 1:49 +/- 4.1 [min.]
angular velocity=0.165E-04 +/- 0.356E-05 [rad/sec]

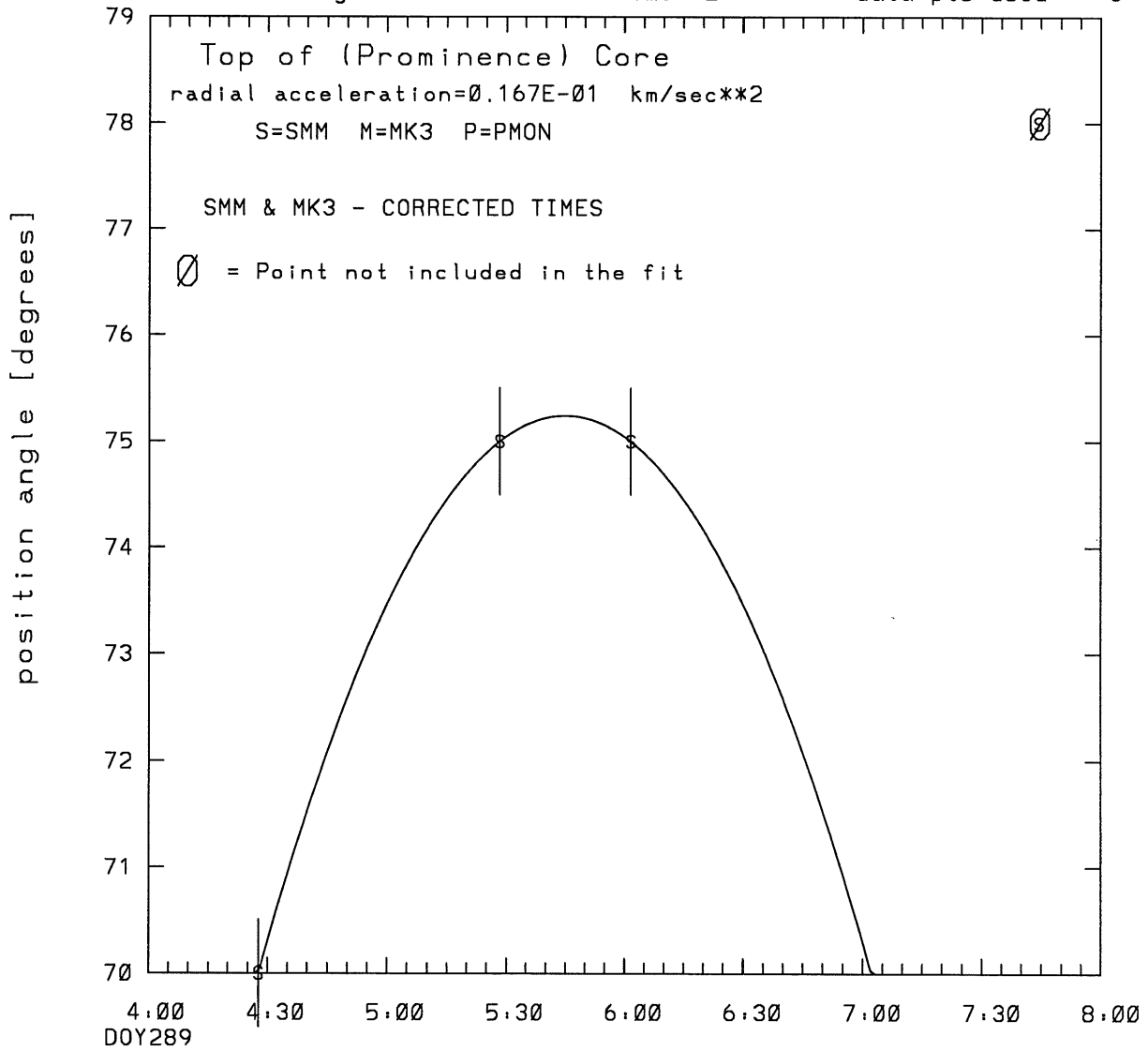
SMM C/P 1987 DOY289 73 +/- 3 degrees



tstart=DOY289 4: 0 from derivative=0
Event begins at 1.97 Solar Radii
radial acceleration = $0.0167 +/- 0.0000$ [km/sec**2]

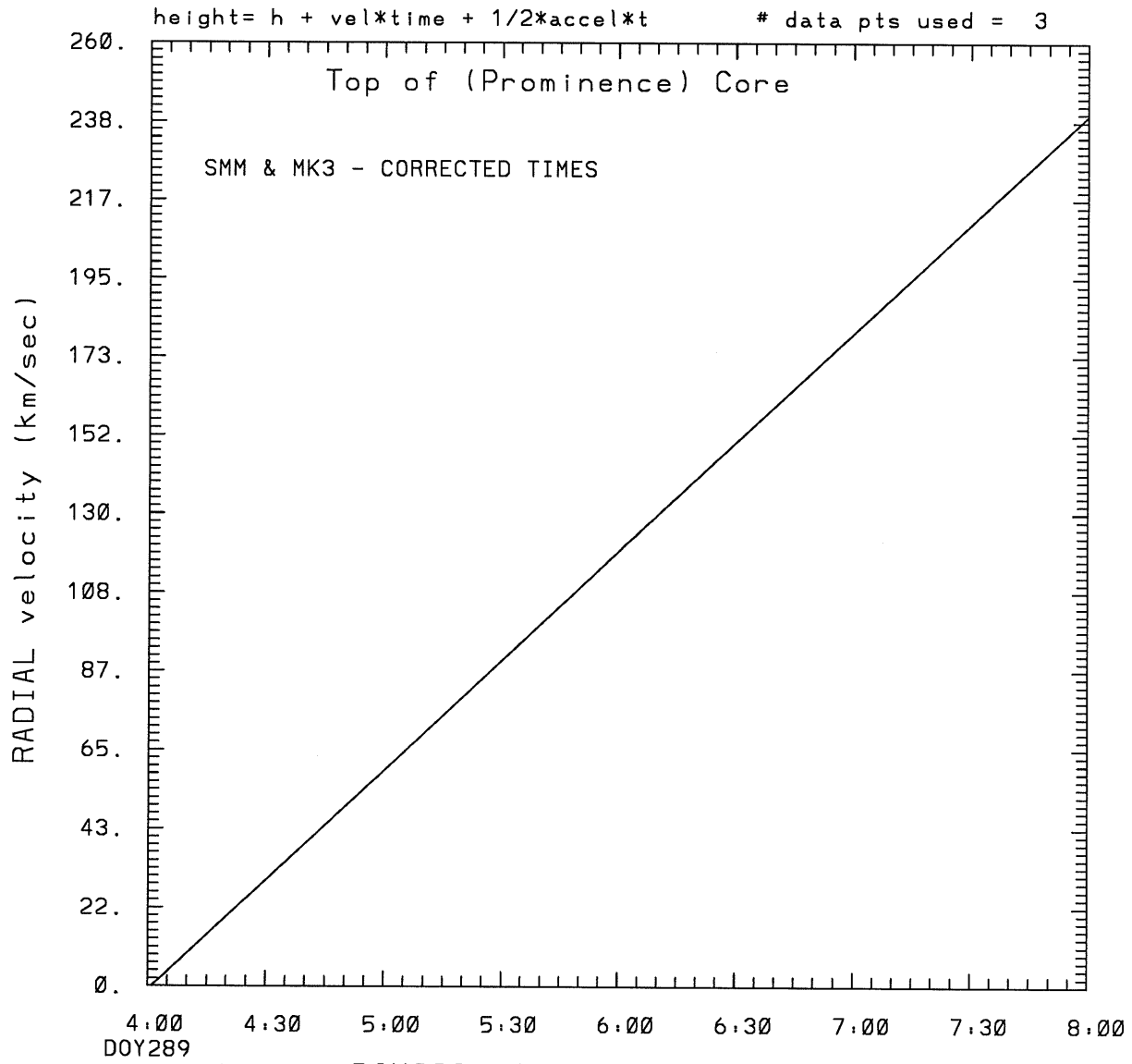
SMM C/P 1987 DOY289 73 +/- 3 degrees

angle = initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2 # data pts used = 3



tstart=DOY289 4: 0 from derivative=0
angular acceleration = -.852E-08 +/- 0.483E-13 [rad/sec**2]

SMM C/P 1987 DOY289 73 +/- 3 degrees

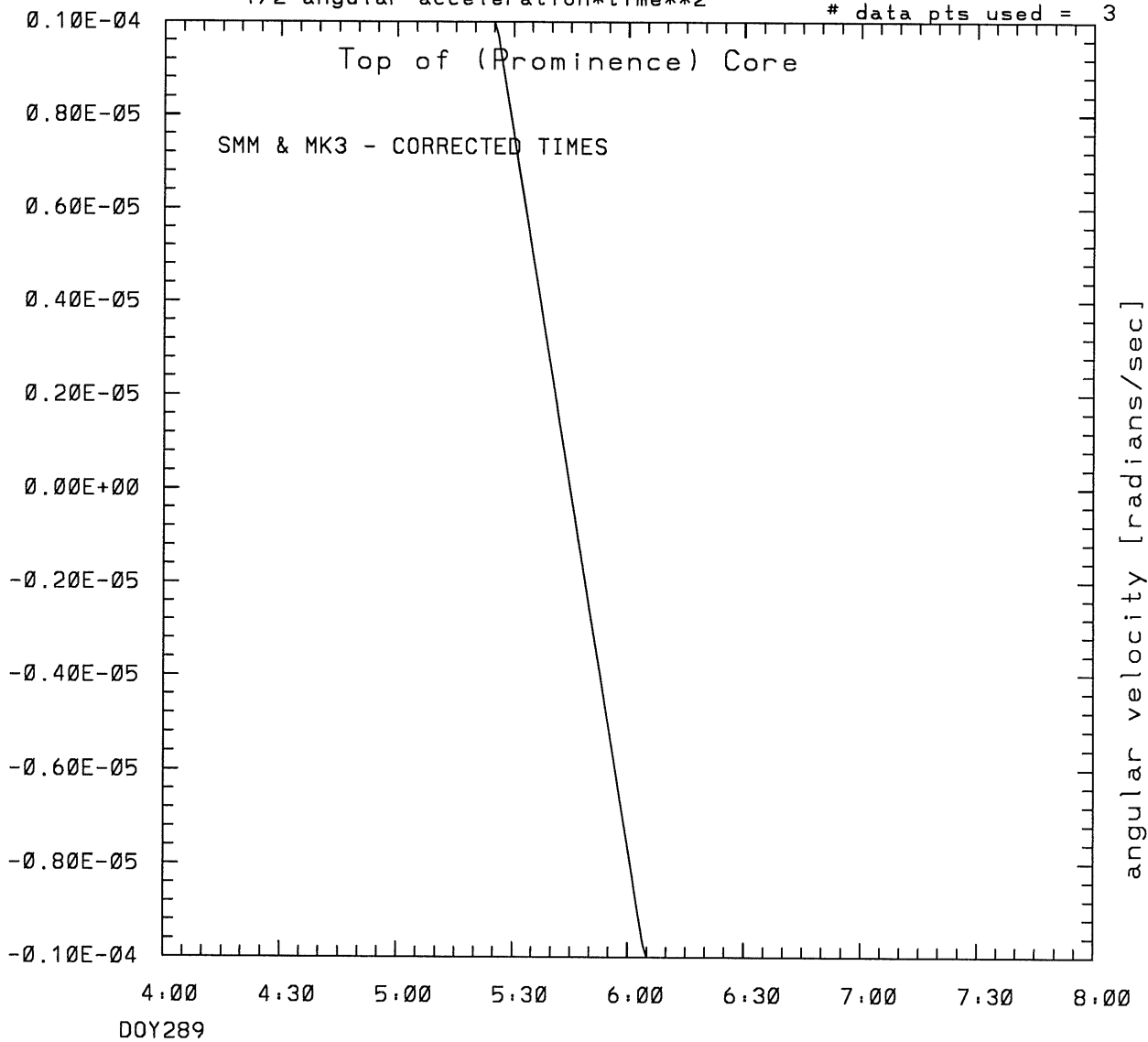


tstart=DOY289 4: 0 from derivative=0
Event begins at 1.97 Solar Radii
radial acceleration=0.167E-01 km/sec**2

SMM C/P 1987 DOY289 73 +/- 3 degrees

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

data pts used = 3



DOY289

tstart=DOY289 4: 0 from derivative=0
angular acceleration=-.852E-08 +/-
0.483E-13 [rad/sec**2]

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1987	289	4:27:43	2.00 +/- 0.10	70.0 +/- 0.5			SMM
1987	289	5:28:20	2.30 +/- 0.20	75.0 +/- 0.5			SMM
1987	289	6: 1:37	2.60 +/- 0.15	75.0 +/- 0.5			SMM
1987	289	7:44:22	3.80 -----	78.00 +/- -----			SMM THIS POINT WASN'T USE

Structure being measured:
Top of (Prominence) Core

OUTPUT:

START TIME:

Event began at t = 0 + -0.133E+03 +/- 0.410E+01 [minutes]
In more convenient units:
Event began at DOY 289 1:49 +/- 0.410E+01 [minutes]

Origin defined at DOY289 4: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 72. +/- 5. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.182E+01 +/- 0.307E-01 [solar radii]
c(2) = 0.619E-02 +/- 0.414E-03 [radii/min]
c(2) = 0.718E+02 +/- 0.480E+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)= 0.39970E+00 [radii] see Bevington pg. 114
error in c(2)= 0.29446E-02 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.1653E-04 +/- 0.3560E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 69. +/- 1. [degrees]
a(2) = 0.568E-01 +/- 0.122E-01 [degrees/min]
a(2) = 0.165E-04 +/- 0.356E-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 4:27 = 72. km/sec

The RADIAL velocity at 5:28 = 72. km/sec

The RADIAL velocity at 6: 1 = 72. km/sec

The RADIAL velocity at 7:44 = 72. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.79
Standard Deviation in start time measurement = 0.713E+02
Error in time = 0.95960E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.119E-02
Reduced Chi Squared = 0.700E+00
Chi Squared = 0.140E+01
The probability for exceeding chi square = 0.999E+00

The correlation coefficient = 0.983E+00
The probability that no LINEAR correlation exists between the variables = 0.17491
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
1987	289	4:27:43	2.00 +/- 0.10	70.0 +/- 0.5		SMM	
1987	289	5:28:20	2.30 +/- 0.20	75.0 +/- 0.5		SMM	
1987	289	6: 1:37	2.60 +/- 0.15	75.0 +/- 0.5		SMM	
1987	289	7:44:22	3.80 -----	78.00 +/- ----		SMM THIS POINT WASN'T USE	

Structure being measured:
Top of (Prominence) Core

OUTPUT:

START TIME:

tstart=DOY289 4: 0 from derivative = 0
Event begins at 1.97 Solar Radii
Origin defined at DOY289 4: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.167E-01 +/- 0.379E-06 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.197E+01 +/- 0.353E-05 [solar radii]
c(2) = -0.738E-04 +/- 0.143E-06 [radii/min]
c(2) = -0.856E+00 +/- 0.166E-02 [km/sec]
c(3) = 0.433E-04 +/- 0.981E-09 [radii/min**2]
c(3) = 0.167E-01 +/- 0.379E-06 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.53426E+00 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.40578E-05 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.99266E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.17786E-06 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.37091E-04 [radii/min**2] Bevington pg 154 (8-30)
Exact error in c(3) = 0.11933E-08 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= -0.8518E-08 +/- 0.4830E-13[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 66. +/- 0. [degrees]
a(2) = 0.184E+00 +/- 0.734E-06 [degrees/min]
a(2) = 0.536E-04 +/- 0.213E-09 [rad/sec]
a(3) = -0.878E-03 +/- 0.498E-08 [degrees/min**2]
a(3) = -0.852E-08 +/- 0.483E-13 [rad/sec**2]

The RADIAL velocity at 4:27 = 27. km/sec

The RADIAL velocity at 5:28 = 88. km/sec

The RADIAL velocity at 6: 1 = 121. km/sec

The RADIAL velocity at 7:44 = 224. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.79
Standard Deviation in start time measurement = 0.713E+02
Value of reduced Chi Squared returned from nllst2 = 0.183E-11
Reduced Chi Squared = 0.439E+00
Chi Squared = 0.439E+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 = 0.9451E+00

The correlation between the data and the time² term = 0.7472E+00

The correlation between the data and the complete equation of motion=0.1135E+01
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]