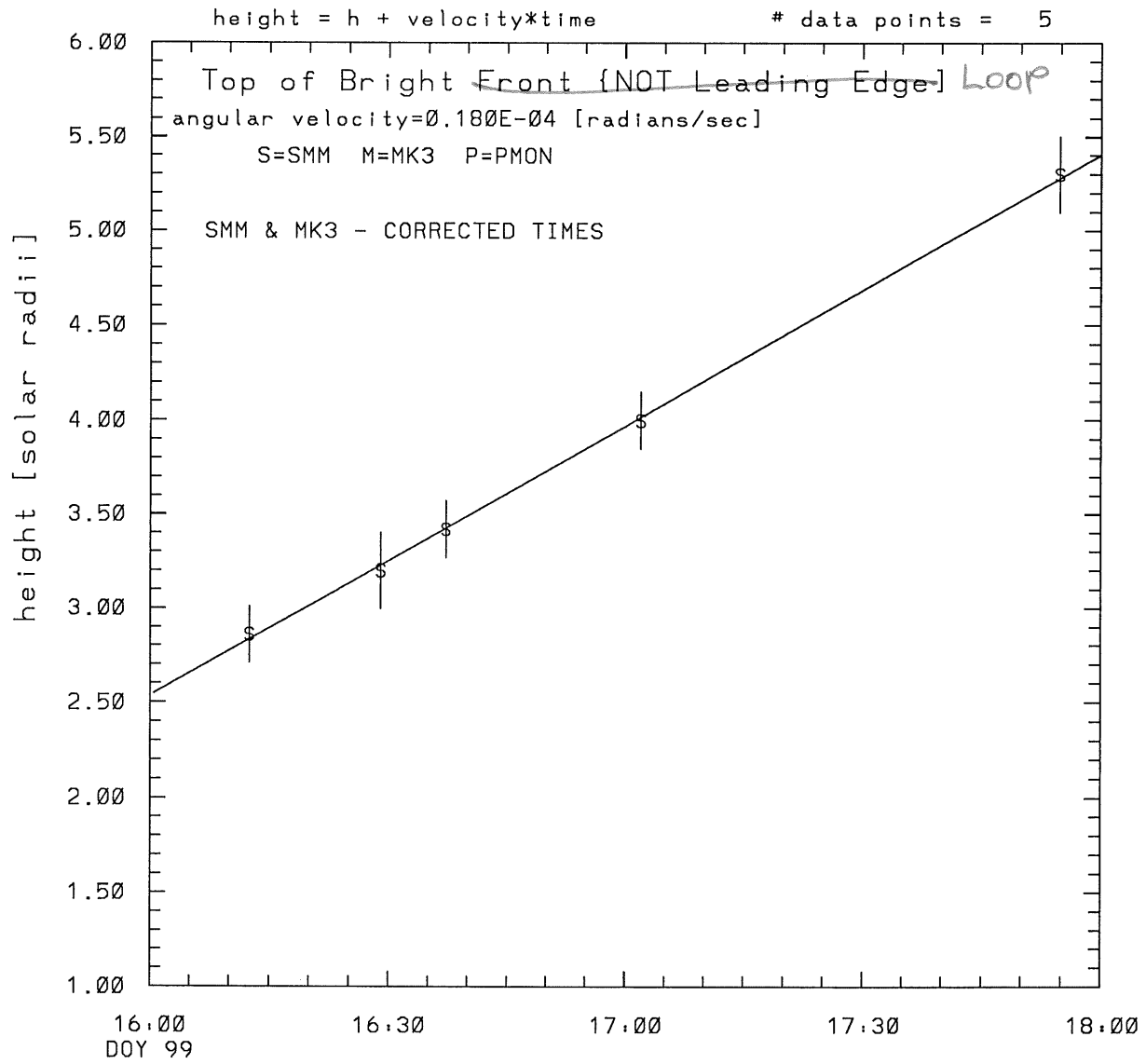


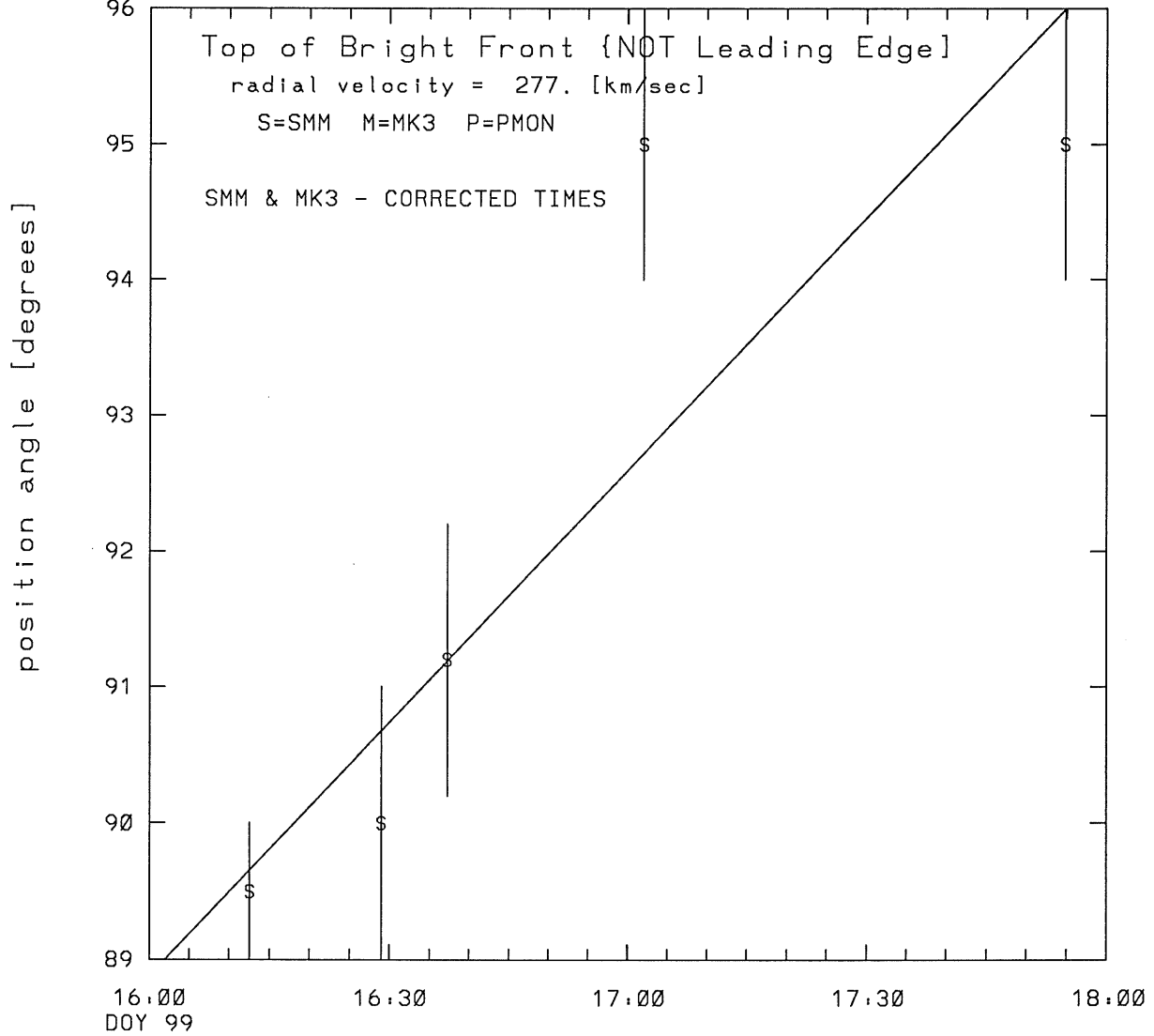
SMM C/P 1988 DOY 99 92 +/- 3 degrees



tstart=DOY 99 14:56 +/- 0.4 [min.]
radial velocity= 277. +/- 4. [km/sec]

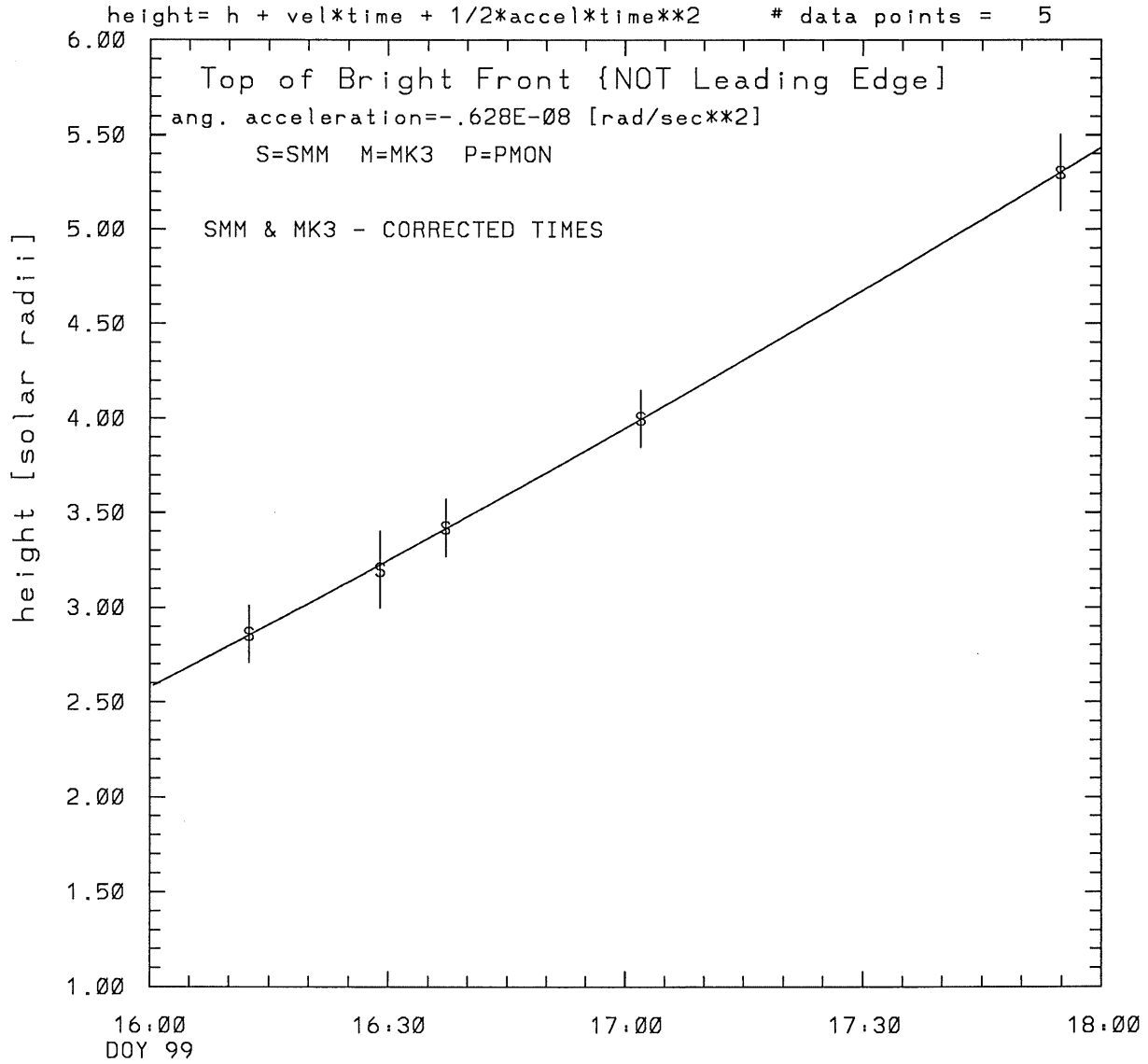
SMM C/P 1988 DOY 99 92 +/- 3 degrees

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



angular velocity = $0.180E-04 \pm 0.395E-05$ [rad/sec]

SMM C/P 1988 DOY 99 92 +/- 3 degrees

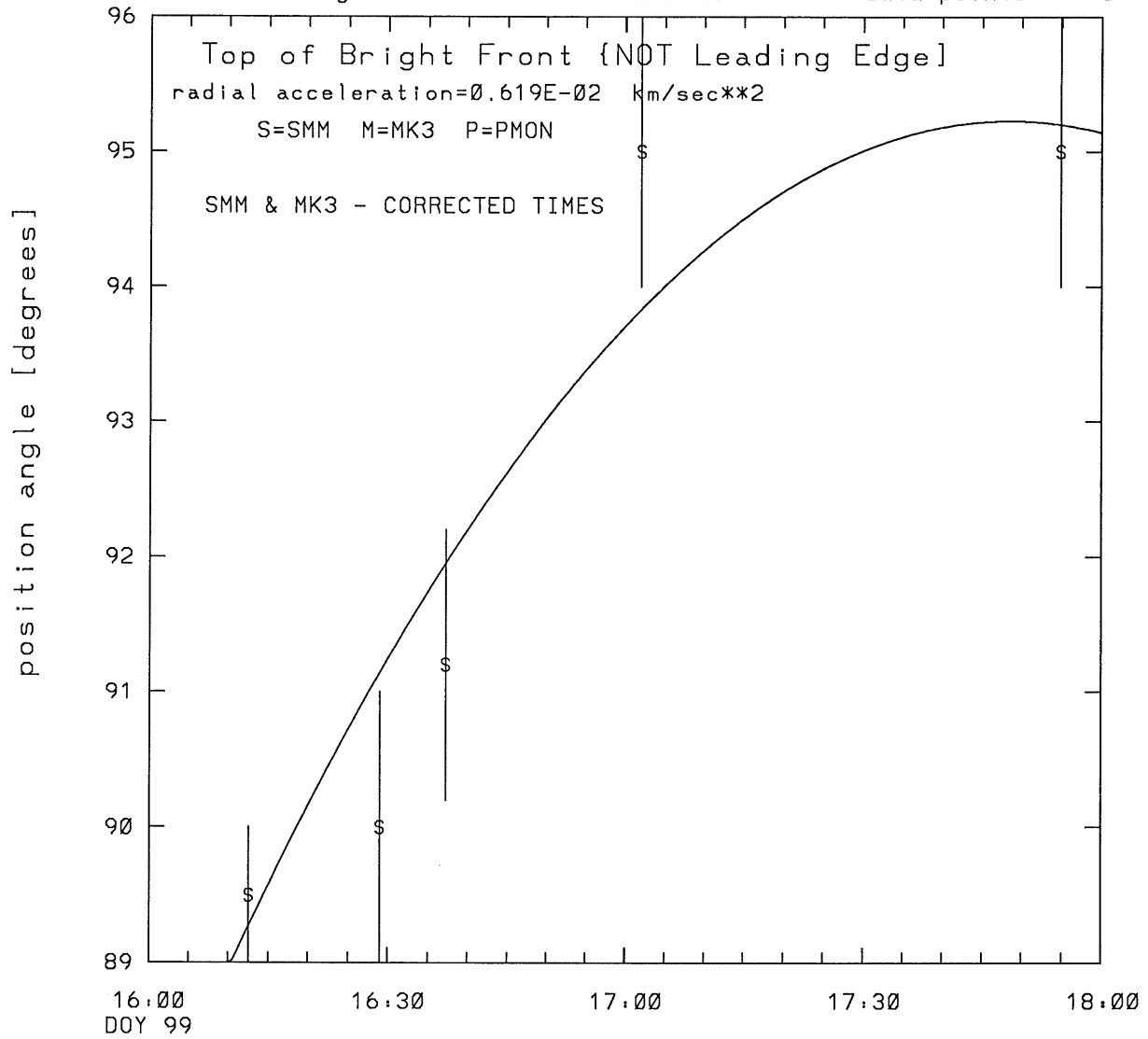


tstart=DOY 99 14:44 +/- 6.9 [min.]

radial acceleration = $0.0062 +/- 0.0022$ [km/sec**2]

SMM C/P 1988 DOY 99 92 +/- 3 degrees

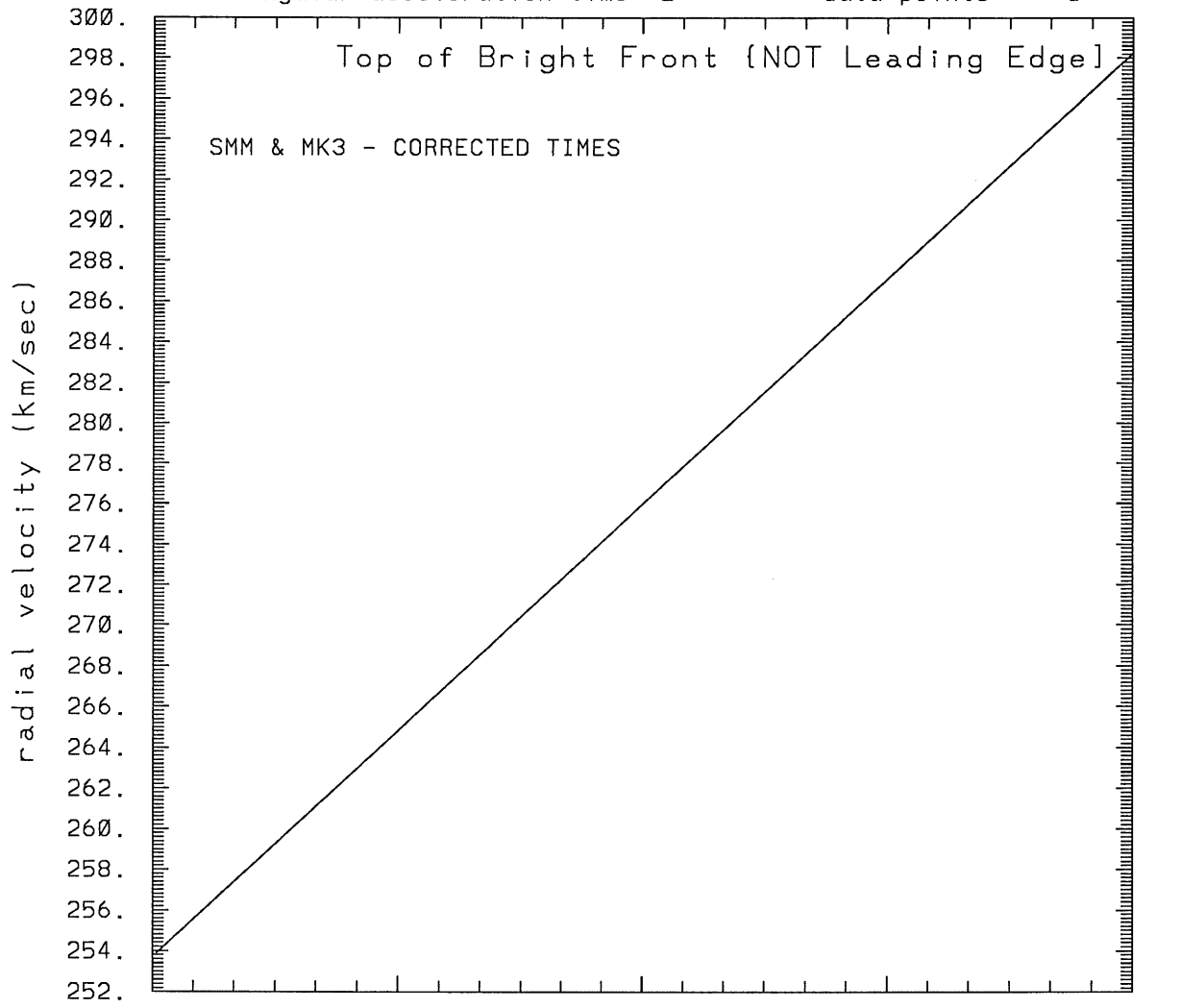
angle = initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2 # data points = 5



angular acceleration = -.628E-08 +/- 0.375E-08 [rad/sec**2]

SMM C/P 1988 DOY 99 92 +/- 3 degrees

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



16:00
DOY 99

16:30

17:00

17:30

18:00

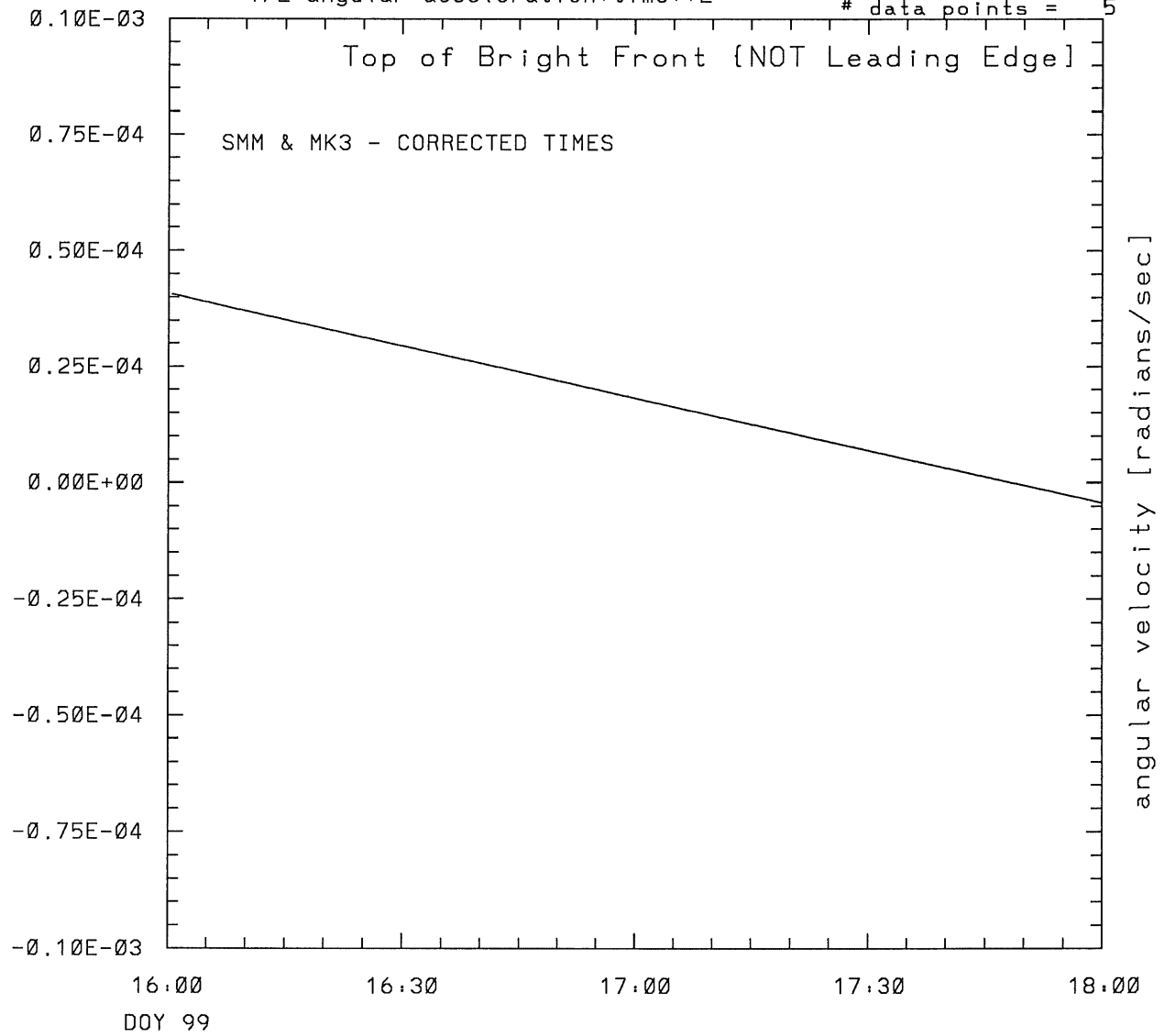
tstart=DOY 99 14:44 +/- 6.9 [min.]

radial acceleration=0.619E-02 km/sec**2

SMM C/P 1988 DOY 99 92 +/- 3 degrees

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

data points = 5



angular acceleration = $-.628E-08 \pm 0.375E-08$ [rad/sec**2]

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1988	99	16:12:30	2.86 +/-	0.15	89.5 +/-	0.5	SMM
1988	99	16:29: 0	3.20 +/-	0.20	90.0 +/-	1.0	SMM
1988	99	16:37:16	3.42 +/-	0.15	91.2 +/-	1.0	SMM
1988	99	17: 2: 1	4.00 +/-	0.15	95.0 +/-	1.0	SMM
1988	99	17:54:53	5.30 +/-	0.20	95.0 +/-	1.0	SMM

Structure being measured:
Top of Bright Front (NOT Leading Edge) *LOOP*

OUTPUT:

START TIME:

Event began at t = 0 + -0.643E+02 +/- 0.429E+00 [minutes]
In more convenient units:
Event began at DOY 99 14:56 +/- 0.429E+00 [minutes]

Origin defined at DOY 99 16: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 277. +/- 4. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.254E+01 +/- 0.177E-01 [solar radii]
c(2) = 0.239E-01 +/- 0.312E-03 [radii/min]
c(2) = 0.277E+03 +/- 0.362E+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)= 0.21208E-01 [radii] see Bevington pg. 114
error in c(2)= 0.34020E-03 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.1802E-04 +/- 0.3945E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 89. +/- 1. [degrees]
a(2) = 0.619E-01 +/- 0.136E-01 [degrees/min]
a(2) = 0.180E-04 +/- 0.395E-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 16:12 = 277. km/sec

The RADIAL velocity at 16:29 = 277. km/sec

The RADIAL velocity at 16:37 = 277. km/sec

The RADIAL velocity at 17: 2 = 277. km/sec

The RADIAL velocity at 17:54 = 277. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.96

Standard Deviation in start time measurement = 0.357E+02

Error in time = 0.19675E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.505E-03

Reduced Chi Squared = 0.188E-02

Chi Squared = 0.565E-02

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.100E+01

The probability that no LINEAR correlation exists between the variables = 0.57891

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
1988	99	16:12:30	2.86 +/-	0.15	89.5 +/-	0.5	SMM
1988	99	16:29: 0	3.20 +/-	0.20	90.0 +/-	1.0	SMM
1988	99	16:37:16	3.42 +/-	0.15	91.2 +/-	1.0	SMM
1988	99	17: 2: 1	4.00 +/-	0.15	95.0 +/-	1.0	SMM
1988	99	17:54:53	5.30 +/-	0.20	95.0 +/-	1.0	SMM

Structure being measured:
Top of Bright Front (NOT Leading Edge)

OUTPUT:

START TIME:

Event began at t = 0 + -0.764E+02 +/- 0.687E+01 [minutes]
In more convenient units:
Event began at DOY 99 14:44 +/- 0.687E+01 [minutes]

Origin defined at DOY 99 16: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.619E-02 +/- 0.217E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.258E+01 +/- 0.183E-01 [solar radii]
c(2) = 0.219E-01 +/- 0.730E-03 [radii/min]
c(2) = 0.254E+03 +/- 0.846E+01 [km/sec]
c(3) = 0.160E-04 +/- 0.562E-05 [radii/min**2]
c(3) = 0.619E-02 +/- 0.217E-02 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.28189E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.61912E-02 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.11254E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.21150E-03 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.83266E-05 [radii/min**2] Bevington pg 154 (8-30)
Exact error in c(3) = 0.14291E-05 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= -0.6277E-08 +/- 0.3748E-08[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 88. +/- 1. [degrees]
a(2) = 0.140E+00 +/- 0.482E-01 [degrees/min]
a(2) = 0.408E-04 +/- 0.140E-04 [rad/sec]
a(3) = -0.647E-03 +/- 0.387E-03 [degrees/min**2]
a(3) = -0.628E-08 +/- 0.375E-08 [rad/sec**2]

The RADIAL velocity at 16:12 = 258. km/sec
The RADIAL velocity at 16:29 = 264. km/sec
The RADIAL velocity at 16:37 = 268. km/sec
The RADIAL velocity at 17: 2 = 277. km/sec
The RADIAL velocity at 17:54 = 296. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

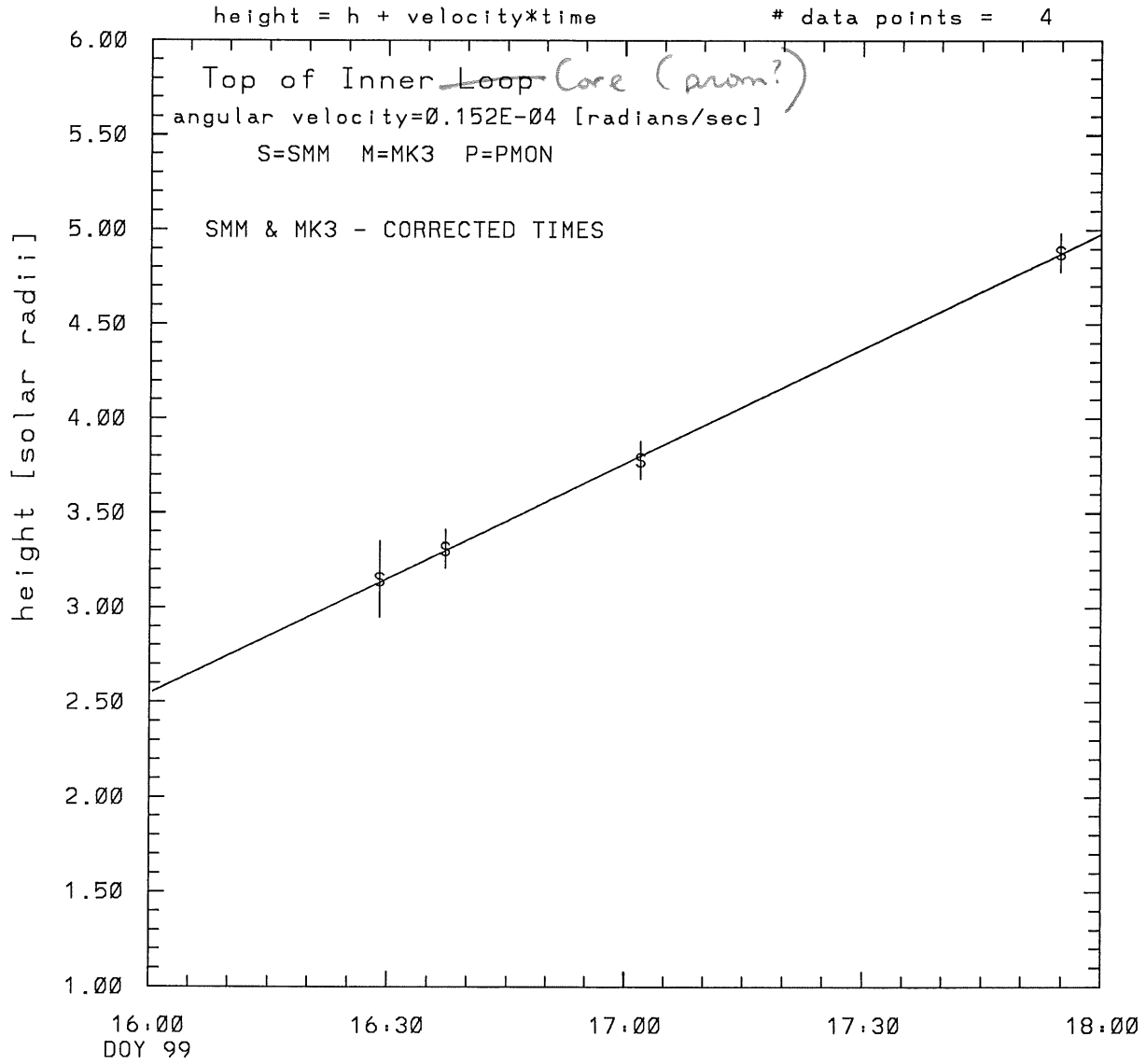
Standard Deviation in the height = 0.96
Standard Deviation in start time measurement = 0.357E+02
Value of reduced Chi Squared returned from nllst2 = 0.182E-03
Reduced Chi Squared = 0.752E-03
Chi Squared = 0.150E-02
The probability for exceeding chi square = 0.100E+01

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 = 0.9120E+00
The correlation between the data and the time**2 term = 0.8553E+00
The correlation between the data and the complete equation of motion=0.1000E+01
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

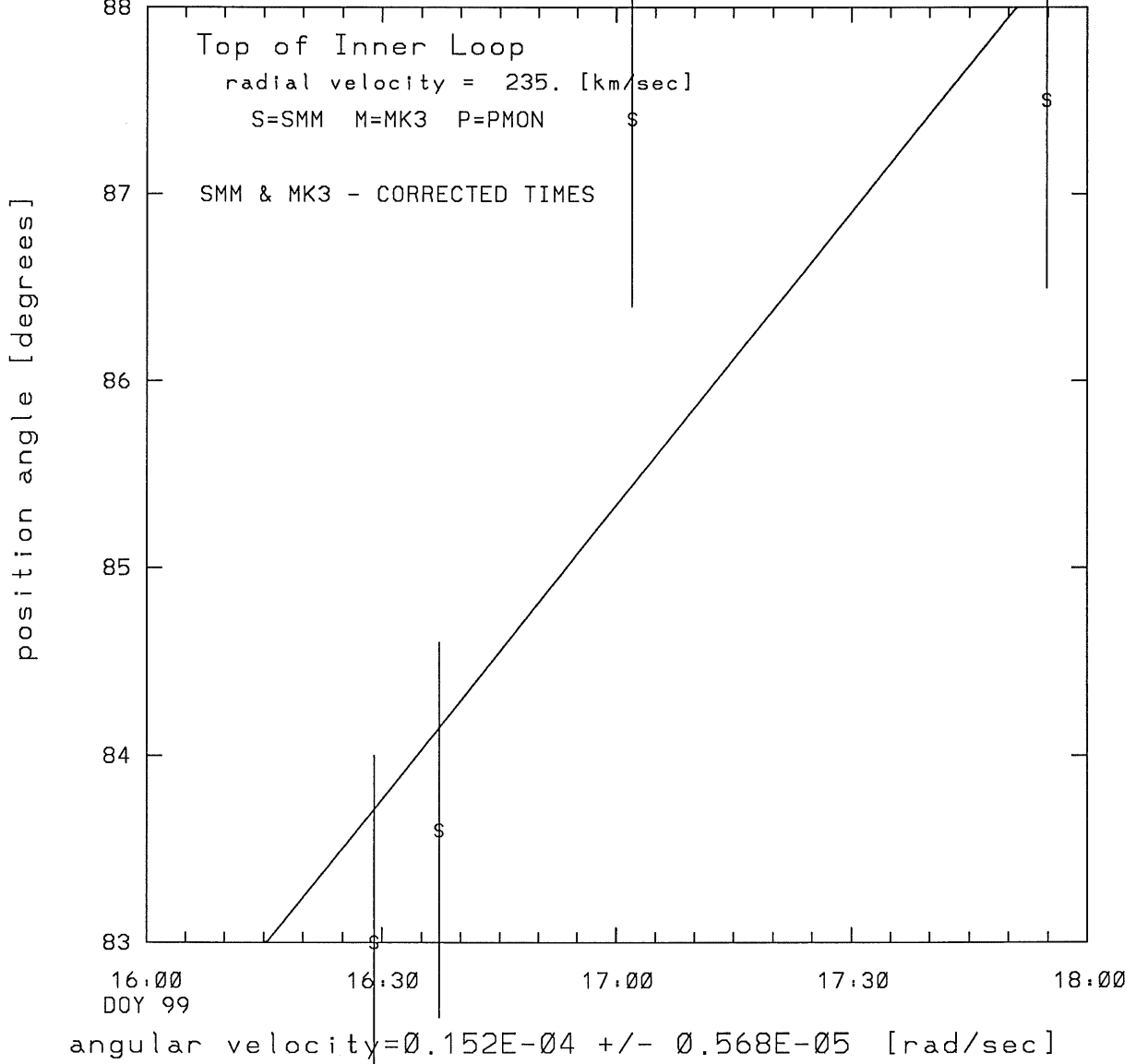
SMM C/P 1988 DOY 99 85 +/- 2 degrees



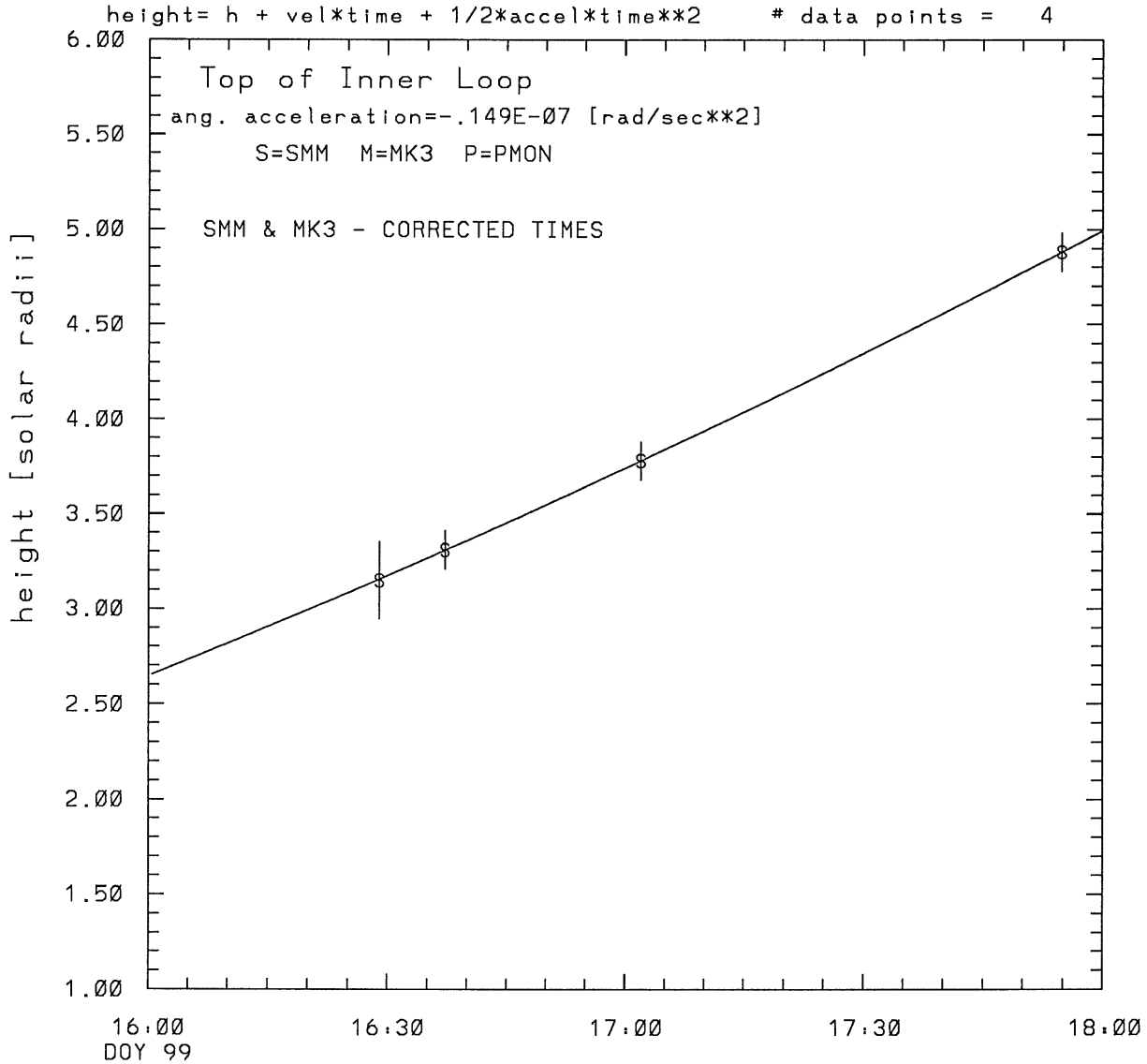
tstart=DOY 99 14:44 +/- 0.5 [min.]
radial velocity= 235. +/- 3. [km/sec]

SMM C/P 1988 DOY 99 85 +/- 2 degrees

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



SMM C/P 1988 DOY 99 85 +/- 2 degrees

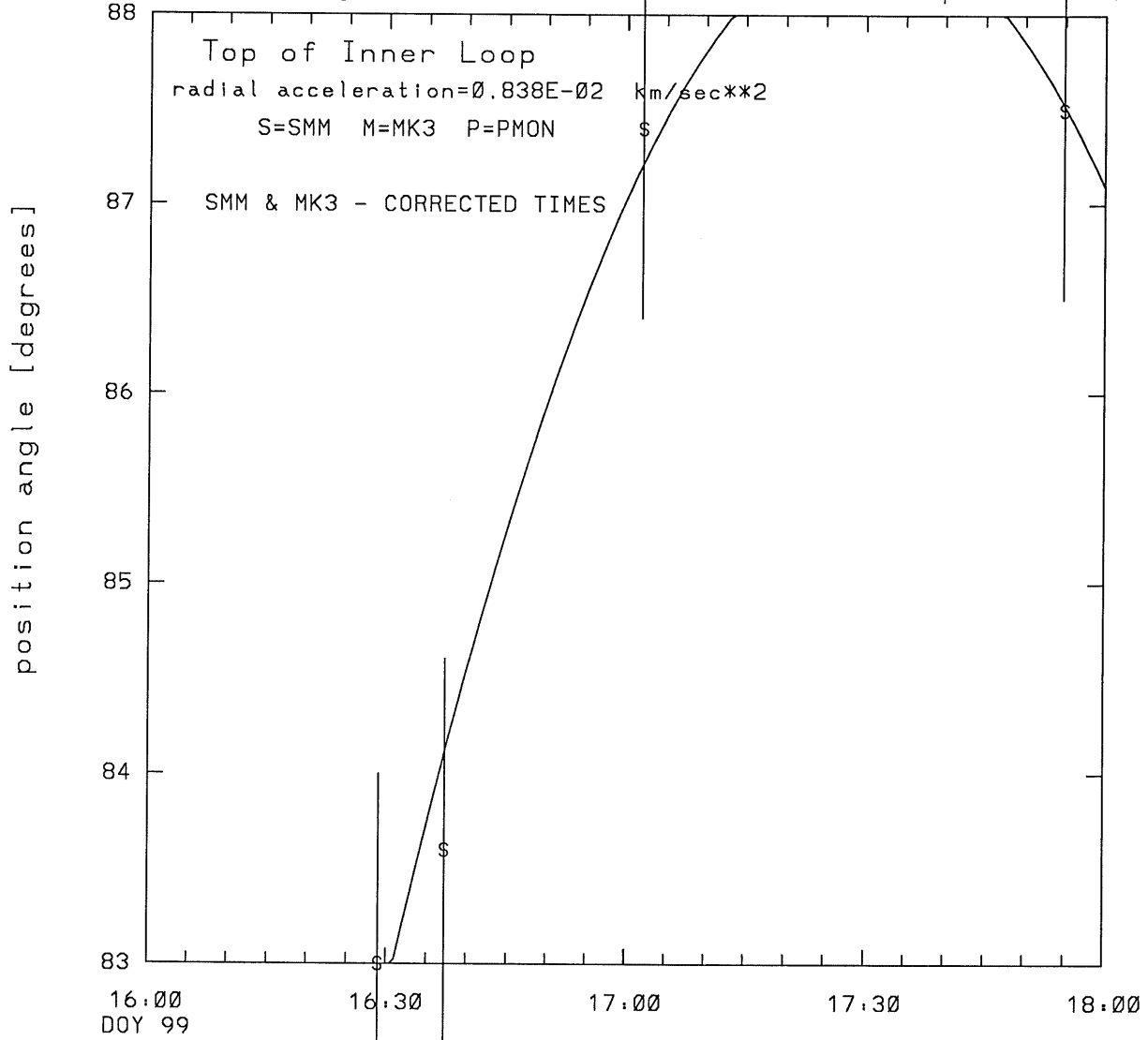


tstart = DOY 99 14: 8 +/- 6.1 [min.]

radial acceleration = $0.0084 +/- 0.0008$ [km/sec**2]

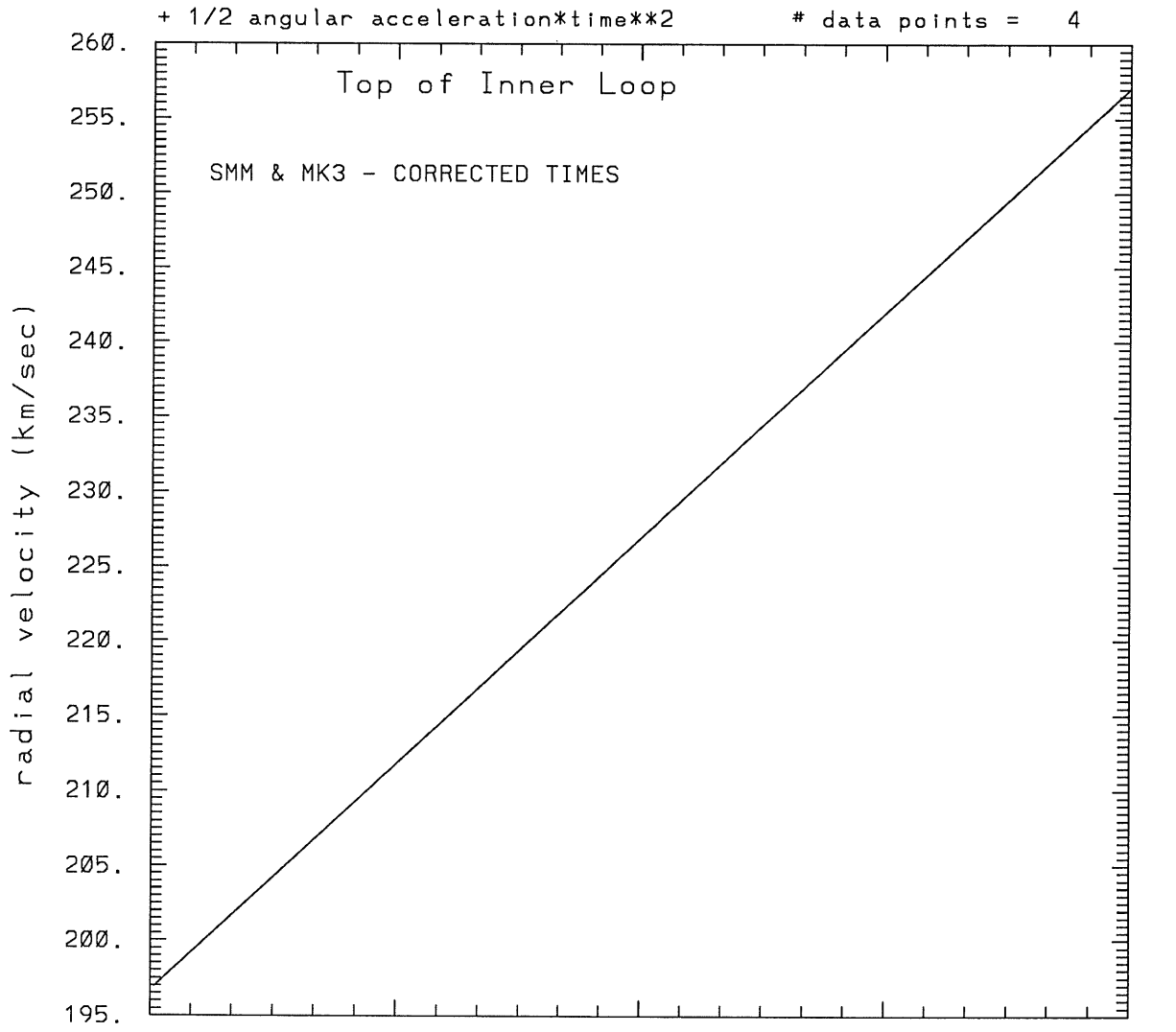
SMM C/P 1988 DOY 99 85 +/- 2 degrees

angle = initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2 # data points = 4



angular acceleration = -.149E-07 +/- 0.313E-08 [rad/sec**2]

SMM C/P 1988 DOY 99 85 +/- 2 degrees



16.00
DOY 99

16.30

17.00

17.30

18.00

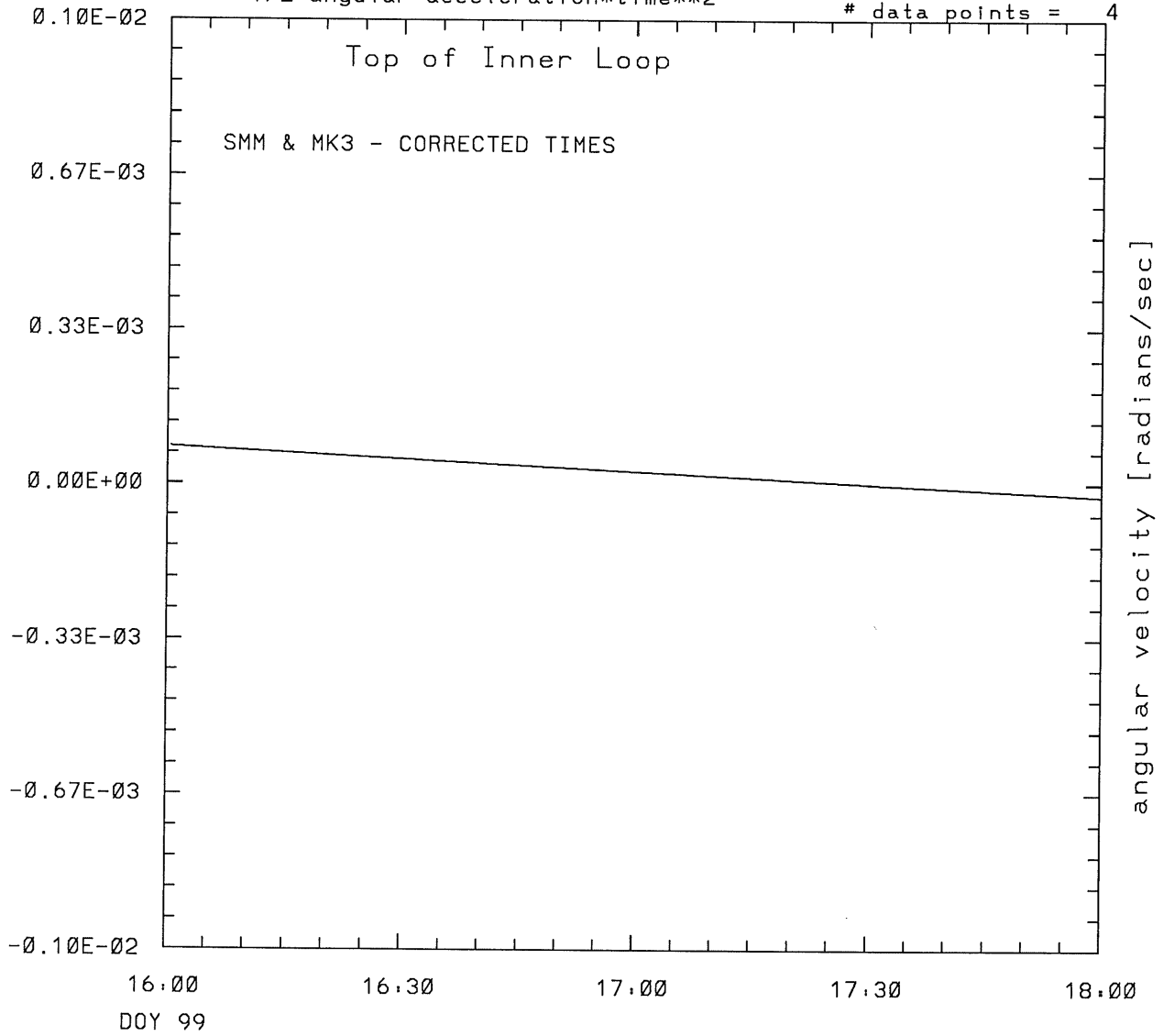
tstart=DOY 99 14: 8 +/- 6.1 [min.]

radial acceleration=0.838E-02 km/sec**2

SMM C/P 1988 DOY 99 85 +/- 2 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 = $-.149E-07 \pm .313E-08$ [rad/sec**2]

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1988	99	16:29: 0	3.15 +/-	0.20	83.0 +/-	1.0	SMM
1988	99	16:37:16	3.31 +/-	0.10	83.6 +/-	1.0	SMM
1988	99	17: 2: 1	3.78 +/-	0.10	87.4 +/-	1.0	SMM
1988	99	17:54:53	4.88 +/-	0.10	87.5 +/-	1.0	SMM

Structure being measured:
Top of Inner Loop *Core (prom?)*

OUTPUT:

START TIME:

Event began at t = 0 + -0.763E+02 +/- 0.458E+00 [minutes]
In more convenient units:
Event began at DOY 99 14:44 +/- 0.458E+00 [minutes]

Origin defined at DOY 99 16: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 235. +/- 3. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.255E+01 +/- 0.193E-01 [solar radii]
c(2) = 0.203E-01 +/- 0.255E-03 [radii/min]
c(2) = 0.235E+03 +/- 0.295E+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)= 0.22192E-01 [radii] see Bevington pg. 114
error in c(2)= 0.31969E-03 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.1520E-04 +/- 0.5684E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 82. +/- 1. [degrees]
a(2) = 0.523E-01 +/- 0.195E-01 [degrees/min]
a(2) = 0.152E-04 +/- 0.568E-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 16:29 = 235. km/sec

The RADIAL velocity at 16:37 = 235. km/sec

The RADIAL velocity at 17: 2 = 235. km/sec

The RADIAL velocity at 17:54 = 235. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.78
Standard Deviation in start time measurement = 0.335E+02
Error in time = 0.14955E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.284E-03
Reduced Chi Squared = 0.105E-02
Chi Squared = 0.211E-02
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.100E+01
The probability that no LINEAR correlation exists between the variables = 0.22911
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
1988	99	16:29: 0	3.15 +/- 0.20	83.0 +/- 1.0		SMM	
1988	99	16:37:16	3.31 +/- 0.10	83.6 +/- 1.0		SMM	
1988	99	17: 2: 1	3.78 +/- 0.10	87.4 +/- 1.0		SMM	
1988	99	17:54:53	4.88 +/- 0.10	87.5 +/- 1.0		SMM	

Structure being measured:
Top of Inner Loop

OUTPUT:

START TIME:

Event began at t = 0 + -0.114E+03 +/- 0.607E+01 [minutes]
In more convenient units:
Event began at DOY 99 14: 8 +/- 0.607E+01 [minutes]

Origin defined at DOY 99 16: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.838E-02 +/- 0.841E-03 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.265E+01 +/- 0.106E-01 [solar radii]
c(2) = 0.170E-01 +/- 0.334E-03 [radii/min]
c(2) = 0.197E+03 +/- 0.388E+01 [km/sec]
c(3) = 0.217E-04 +/- 0.217E-05 [radii/min**2]
c(3) = 0.838E-02 +/- 0.841E-03 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.19254E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.73483E-02 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.65524E-03 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.19289E-03 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.44191E-05 [radii/min**2] Bevington pg 154 (8-30)
Exact error in c(3) = 0.11299E-05 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= -0.1492E-07 +/- 0.3129E-08[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 76. +/- 1. [degrees]
a(2) = 0.278E+00 +/- 0.478E-01 [degrees/min]
a(2) = 0.809E-04 +/- 0.139E-04 [rad/sec]
a(3) = -0.154E-02 +/- 0.323E-03 [degrees/min**2]
a(3) = -0.149E-07 +/- 0.313E-08 [rad/sec**2]

The RADIAL velocity at 16:29 = 211. km/sec

The RADIAL velocity at 16:37 = 215. km/sec

The RADIAL velocity at 17: 2 = 228. km/sec

The RADIAL velocity at 17:54 = 254. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.78
Standard Deviation in start time measurement = 0.335E+02
Value of reduced Chi Squared returned from nllst2 = 0.841E-05
Reduced Chi Squared = 0.448E-04
Chi Squared = 0.448E-04
The probability for exceeding chi square = 0.998E+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 = 0.1011E+01

The correlation between the data and the time**2 term = 0.1034E+01

The correlation between the data and the complete equation of motion=0.9997E+00

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