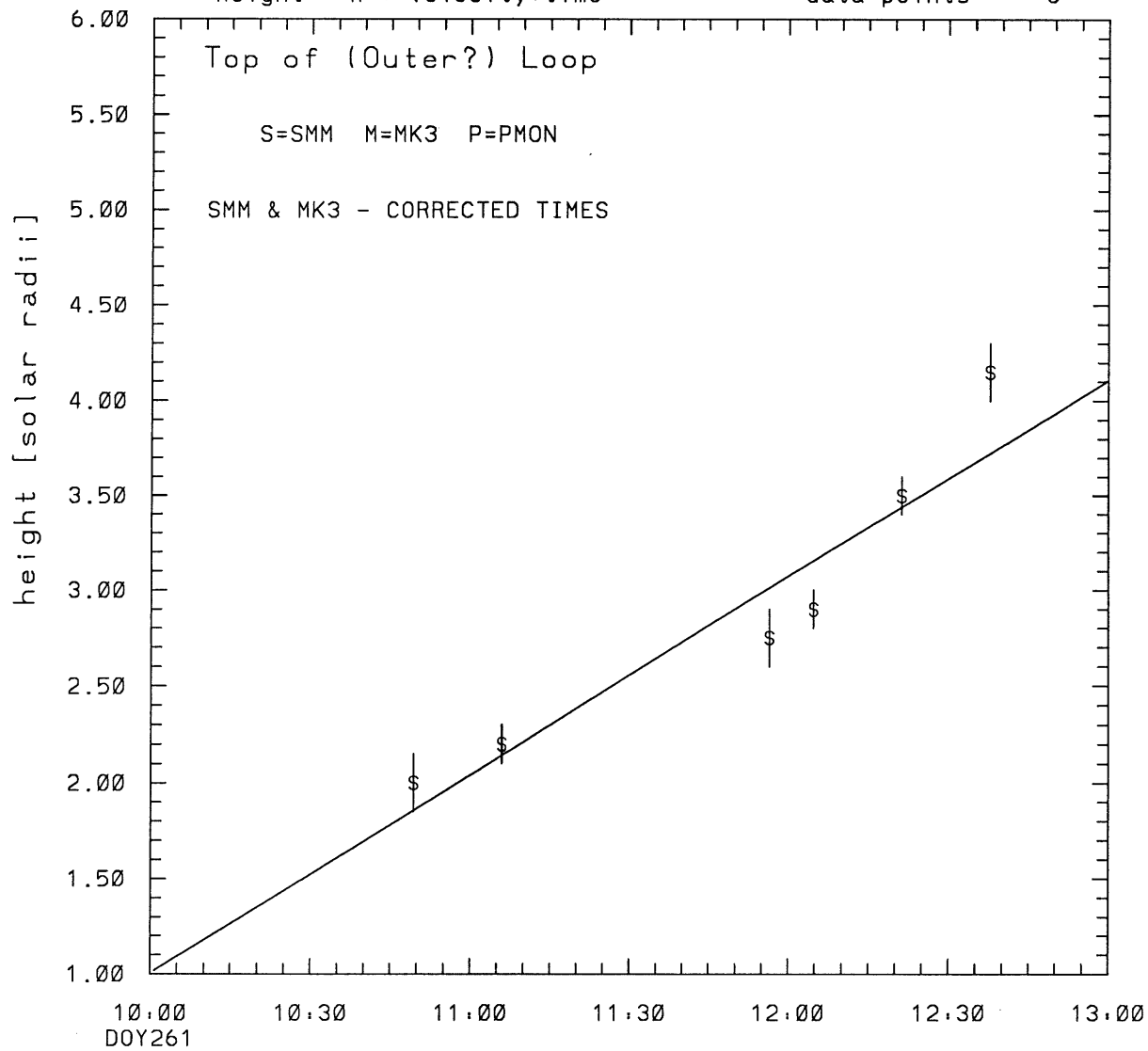


SMM C/P 1989 DOY261 320 +/- 0 degrees

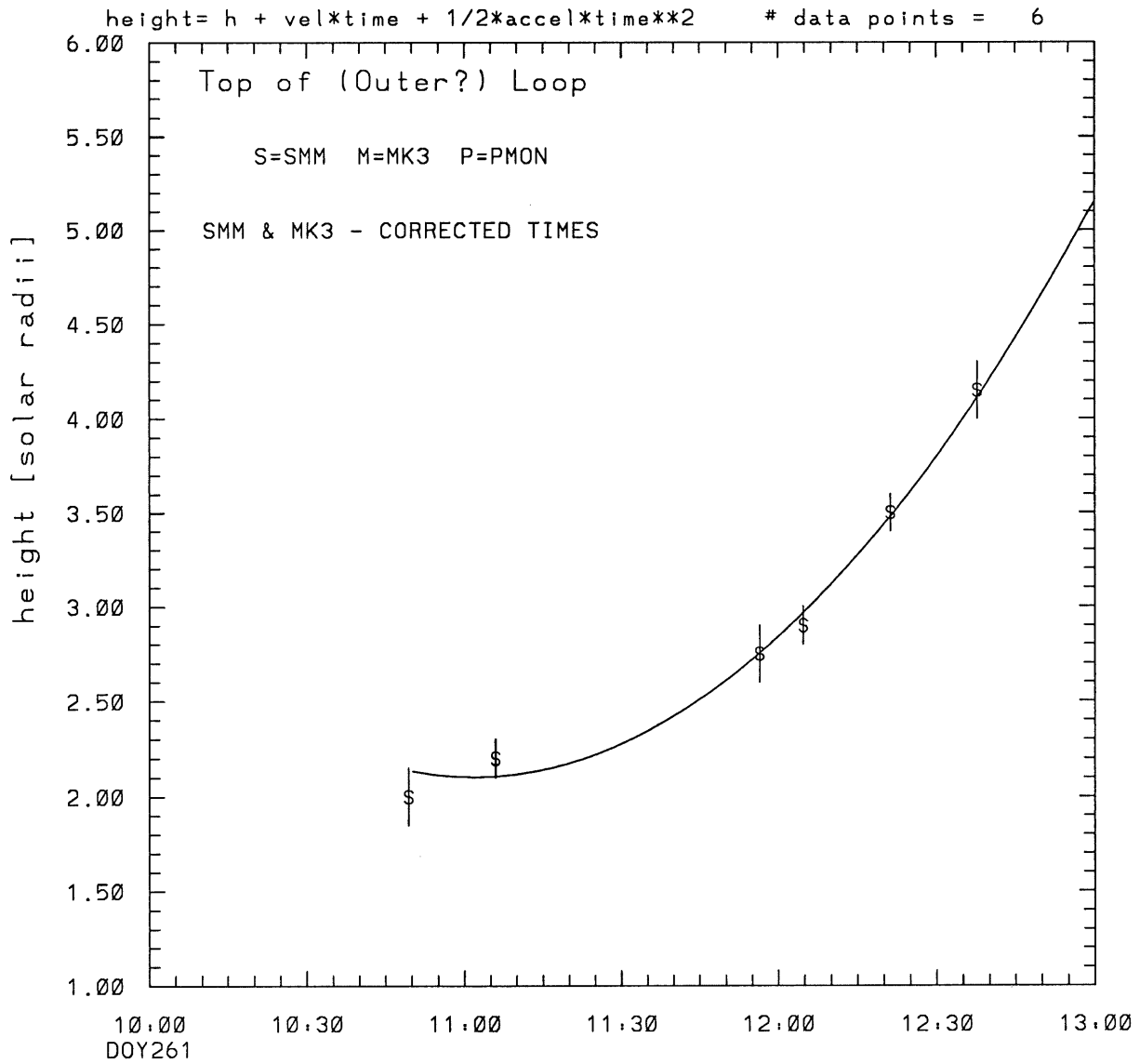
height = h + velocity*time

data points = 6



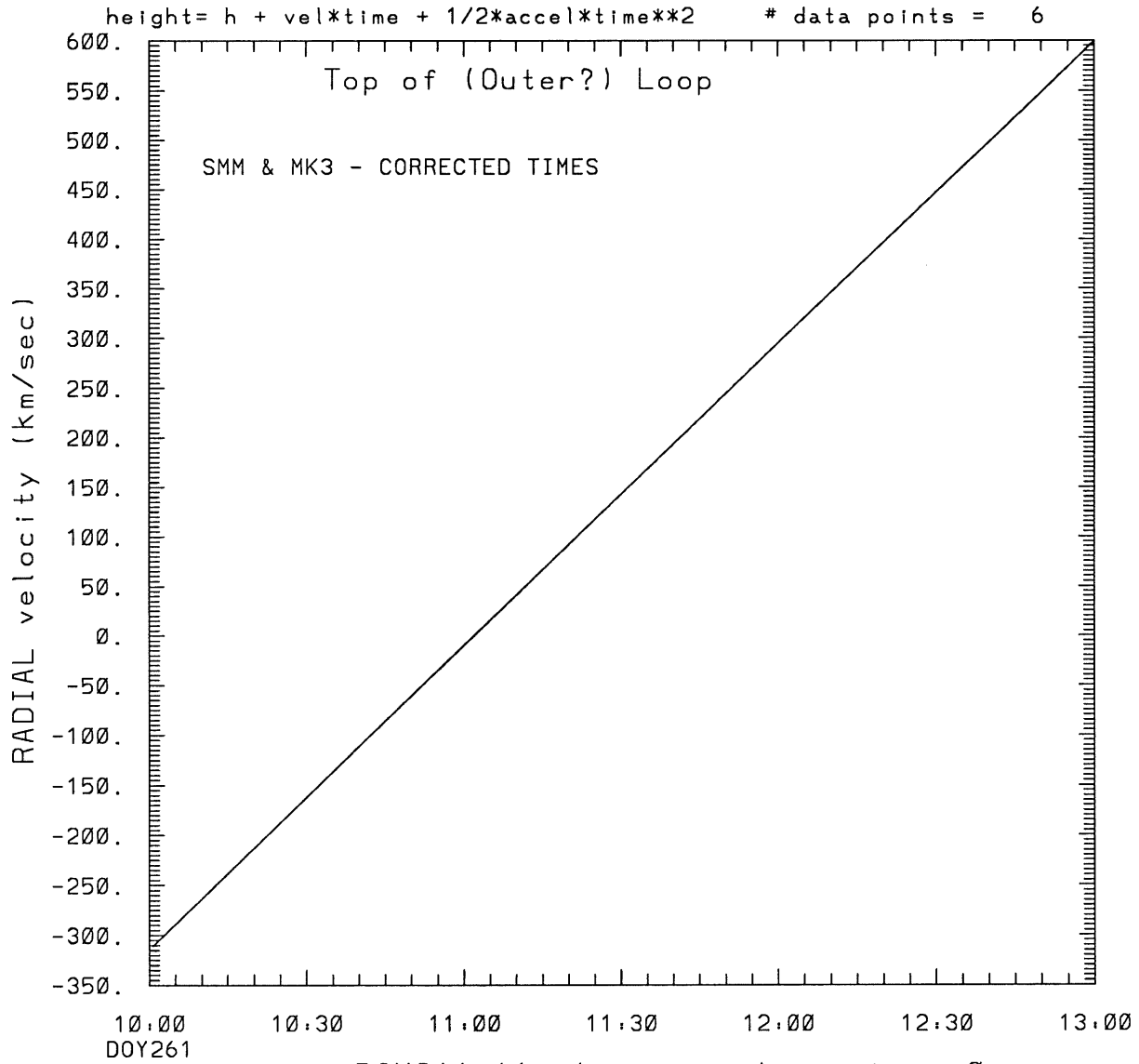
tstart=DOY261 10: 0 +/- 0.0 [min.]
radial velocity= 200. +/- 30. [km/sec]

SMM C/P 1989 DOY261 320 +/- 0 degrees



tstart=DOY261 11: 1 from derivative=0
Event begins at 2.10 Solar Radii
radial acceleration = 0.0846 +/- 0.0154 [km/sec**2]

SMM C/P 1989 DOY261 320 +/- 0 degrees



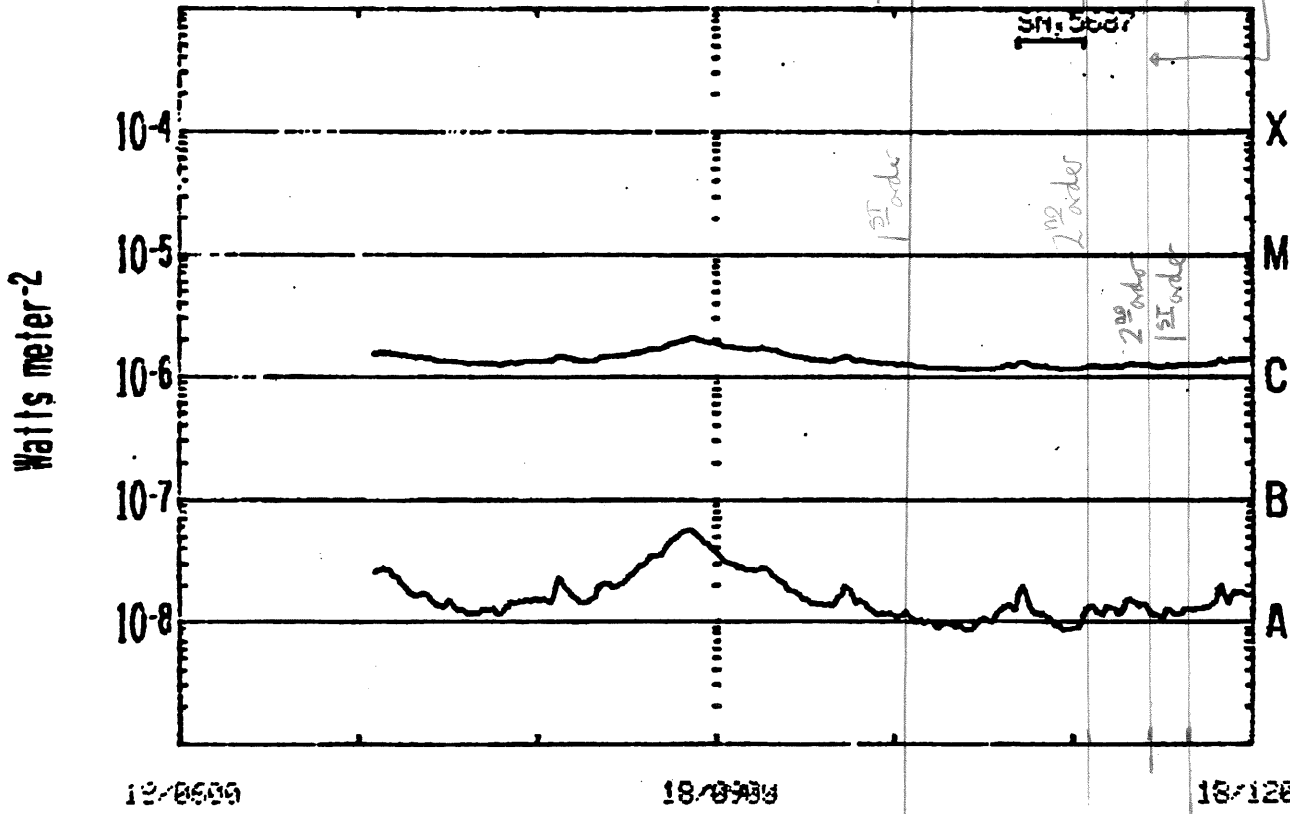
DOY261 tstart=DOY261 11: 1 from derivative=0
Event begins at 2.10 Solar Radii
radial acceleration=0.846E-01 km/sec**2

1989 007 261

GOES 7 OPTICAL DATA TOGETHER

STOP
Ret..

BEGIN: 18 SEP 89



GOES 7 0.5-4.0A OPTICAL FLARES
GOES 7 1.0-8.0A

18/0600

18/0930

18/1200

SAA's
NIGHT

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

RUN: 211UT
19 SEP 89

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	261	10:49:25	2.00 +/- 0.15	320.0 +/- 0.5			SMM
1989	261	11: 5:56	2.20 +/- 0.10	320.0 +/- 0.5			SMM
1989	261	11:56:30	2.75 +/- 0.15	320.0 +/- 0.5			SMM
1989	261	12: 4:46	2.90 +/- 0.10	320.0 +/- 0.5			SMM
1989	261	12:21:16	3.50 +/- 0.10	320.0 +/- 1.0			SMM
1989	261	12:37:46	4.15 +/- 0.15	320.0 +/- 1.0			SMM

Structure being measured:
Top of (Outer?) Loop

OUTPUT:

START TIME:

Event began at $t = 0 + -0.338E+00 +/- 0.208E-01$ [minutes]
In more convenient units:
Event began at DOY 261 10:00 +/- 0.208E-01 [minutes]
Event began at DOY 261 10: 0 +/- 0.208E-01 [minutes]
Origin defined at DOY261 10: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 200. +/- 30. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.101E+01 +/- 0.298E+00 [solar radii]
c(2) = 0.172E-01 +/- 0.258E-02 [radii/min]
c(2) = 0.200E+03 +/- 0.299E+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)= 0.35583E+00 [radii] see Bevington pg. 114
error in c(2)= 0.30667E-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) = 320. +/- 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 RADIAL velocity at 10:49 = 200. km/sec

The RADIAL velocity at 11: 5 = 200. km/sec

The RADIAL velocity at 11:56 = 200. km/sec

The RADIAL velocity at 12: 4 = 200. km/sec

The RADIAL velocity at 12:21 = 200. km/sec

The RADIAL velocity at 12:37 = 200. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.81

Standard Deviation in start time measurement = 0.390E+02

Error in time = 0.34017E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.534E-01

Reduced Chi Squared = 0.401E+00

Chi Squared = 0.160E+01

The probability for exceeding chi square = 0.995E+00

The correlation coefficient = 0.947E+00

The probability that no LINEAR correlation exists between the variables = 0.4148]

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	261	10:49:25	2.00 +/- 0.15	320.0 +/- 0.5			SMM
1989	261	11: 5:56	2.20 +/- 0.10	320.0 +/- 0.5			SMM
1989	261	11:56:30	2.75 +/- 0.15	320.0 +/- 0.5			SMM
1989	261	12: 4:46	2.90 +/- 0.10	320.0 +/- 0.5			SMM
1989	261	12:21:16	3.50 +/- 0.10	320.0 +/- 1.0			SMM
1989	261	12:37:46	4.15 +/- 0.15	320.0 +/- 1.0			SMM

Structure being measured:
Top of (Outer?) Loop

OUTPUT:

START TIME:

tstart=DOY261 11: 1 from derivative = 0
Event begins at 2.10 Solar Radii
Origin defined at DOY261 10: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.846E-01 +/- 0.154E-01 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.294E+01 +/- 0.371E+00 [solar radii]
c(2) = -0.271E-01 +/- 0.814E-02 [radii/min]
c(2) = -0.314E+03 +/- 0.945E+02 [km/sec]
c(3) = 0.219E-03 +/- 0.399E-04 [radii/min**2]
c(3) = 0.846E-01 +/- 0.154E-01 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.37649E+00 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.15065E+00 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.83289E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.23733E-02 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.40729E-04 [radii/min**2] Bevington pg 154 (8-30)
Exact error in c(3) = 0.94217E-05 [radii/min**2] 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) = 320. +/- 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 RADIAL velocity at 10:49 = -64. km/sec

The RADIAL velocity at 11: 5 = 20. km/sec

The RADIAL velocity at 11:56 = 277. km/sec

The RADIAL velocity at 12: 4 = 319. km/sec

The RADIAL velocity at 12:21 = 403. km/sec

The RADIAL velocity at 12:37 = 486. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.81

Standard Deviation in start time measurement = 0.390E+02

Value of reduced Chi Squared returned from nllst2 = 0.783E-02

Reduced Chi Squared = 0.216E-01

Chi Squared = 0.647E-01

The probability for exceeding chi square = 0.999E+00

For a second order fit 3 correlation coefficients are given:

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

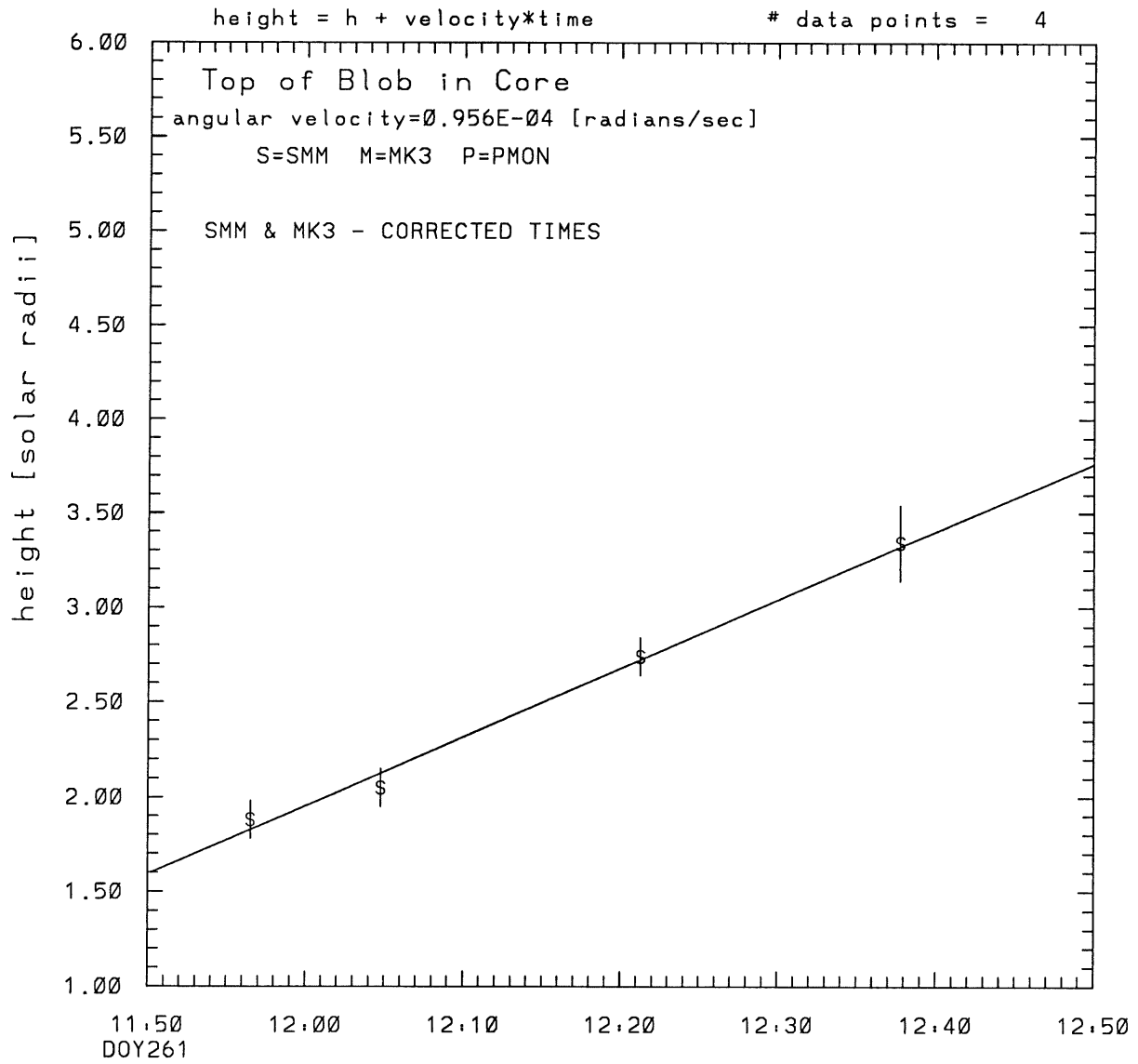
The correlation between the data and the term linear in time = 0.8888E+00

The correlation between the data and the time**2 term = 0.9151E+00

The correlation between the data and the complete equation of motion=0.9886E+00

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

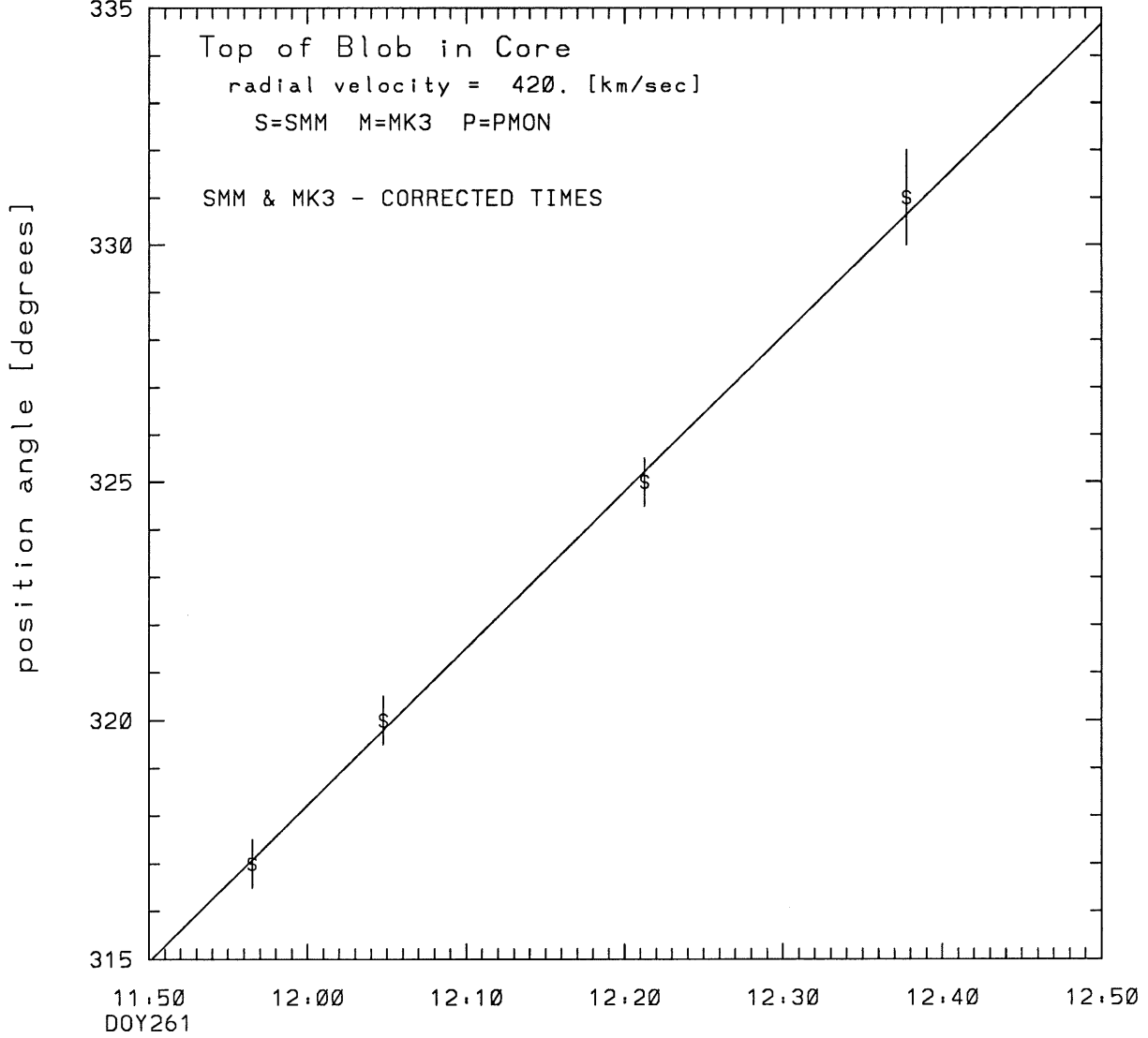
SMM C/P 1989 DOY261 323 +/- 8 degrees



tstart=DOY261 11.34 +/- 0.5 [min.]
radial velocity= 420. +/- 28. [km/sec]

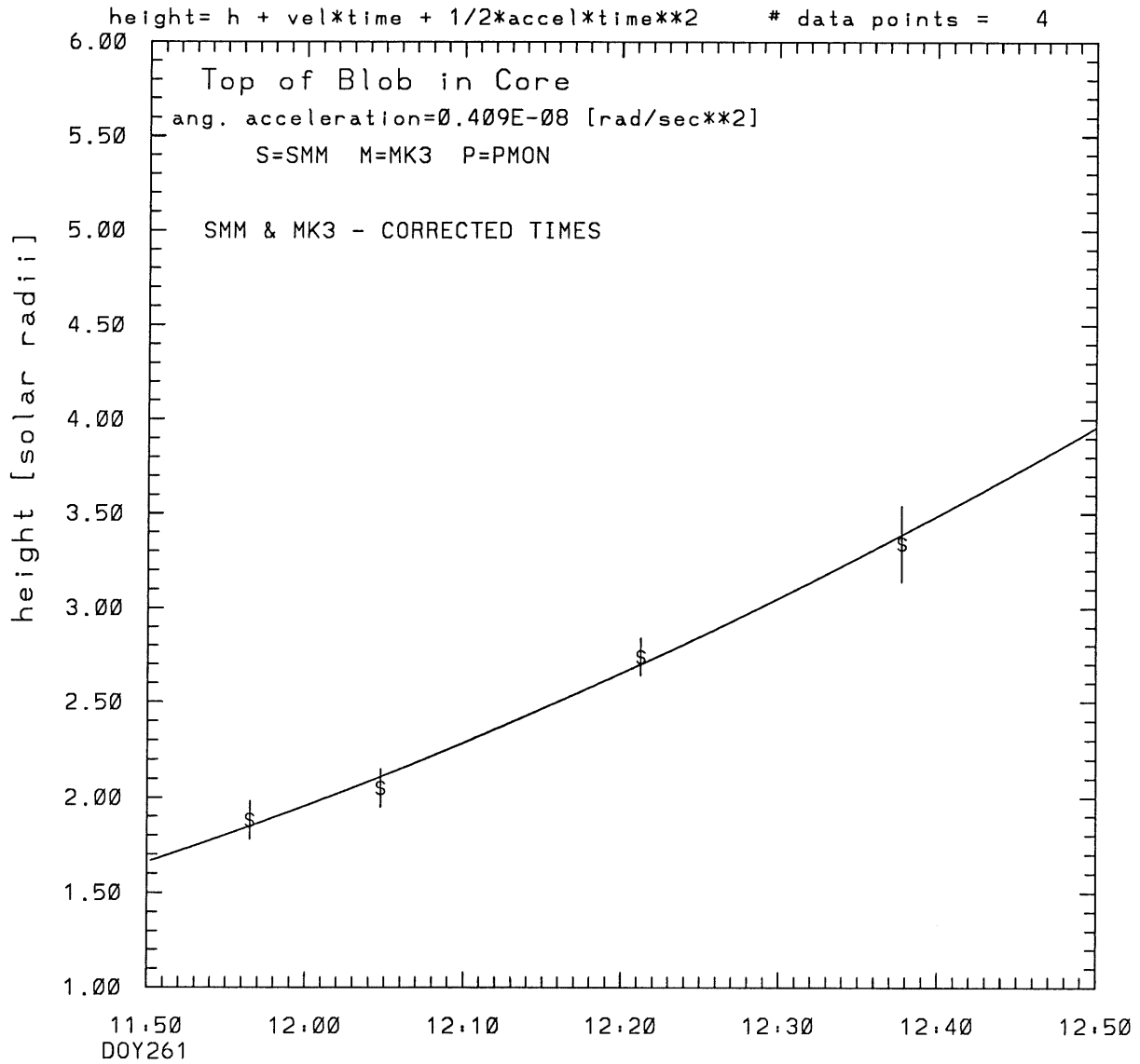
SMM C/P 1989 DOY261 323 +/- 8 degrees

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



tstart=DOY261 11:34 +/- 0.5 [min.]
angular velocity=0.956E-04 +/- 0.261E-05 [rad/sec]

SMM C/P 1989 DOY261 323 +/- 8 degrees

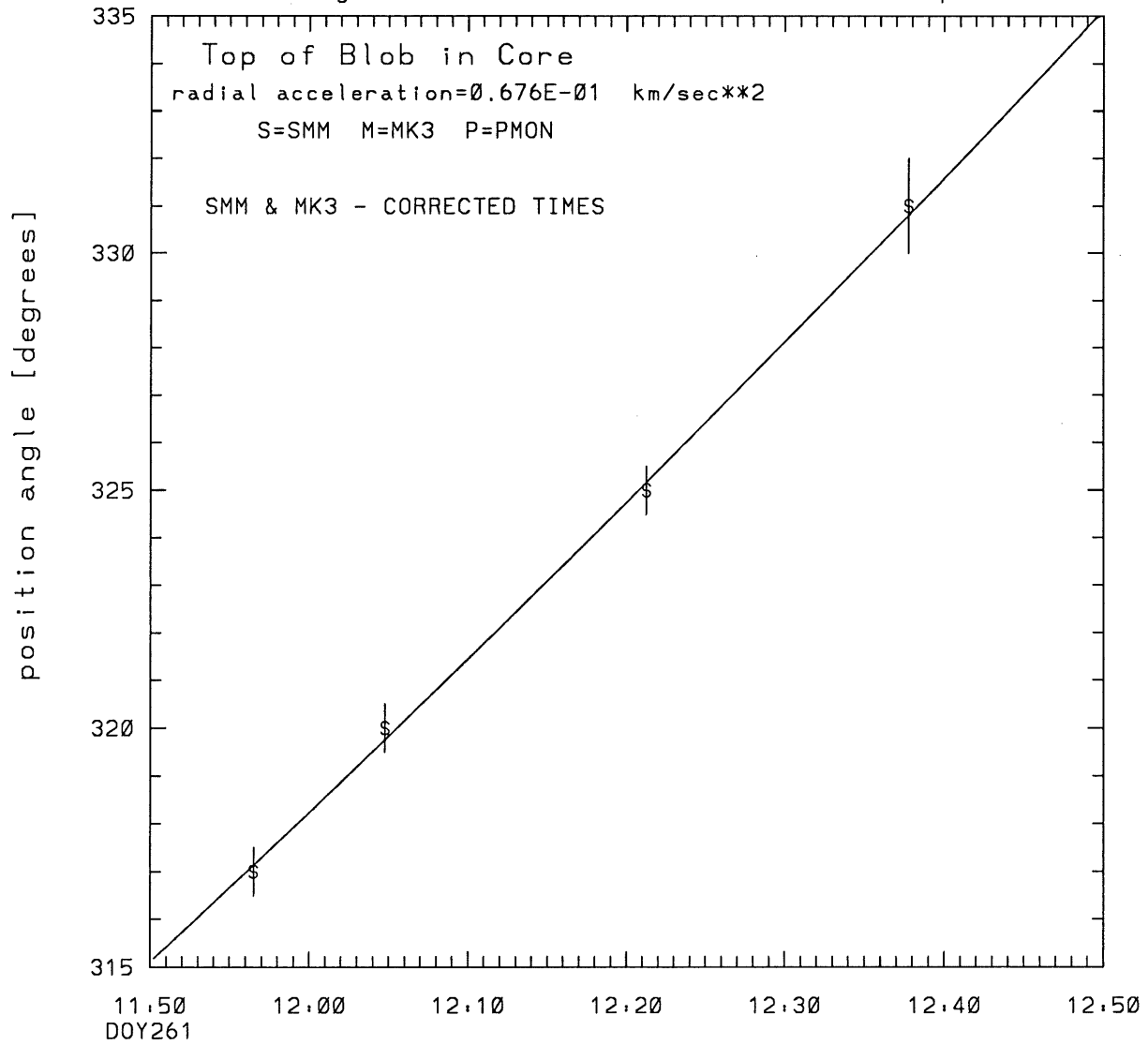


tstart=DOY261 11:21 +/- 20.4 [min.]

radial acceleration = $0.0676 +/- 0.0794$ [km/sec**2]

SMM C/P 1989 DOY261 323 +/- 8 degrees

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

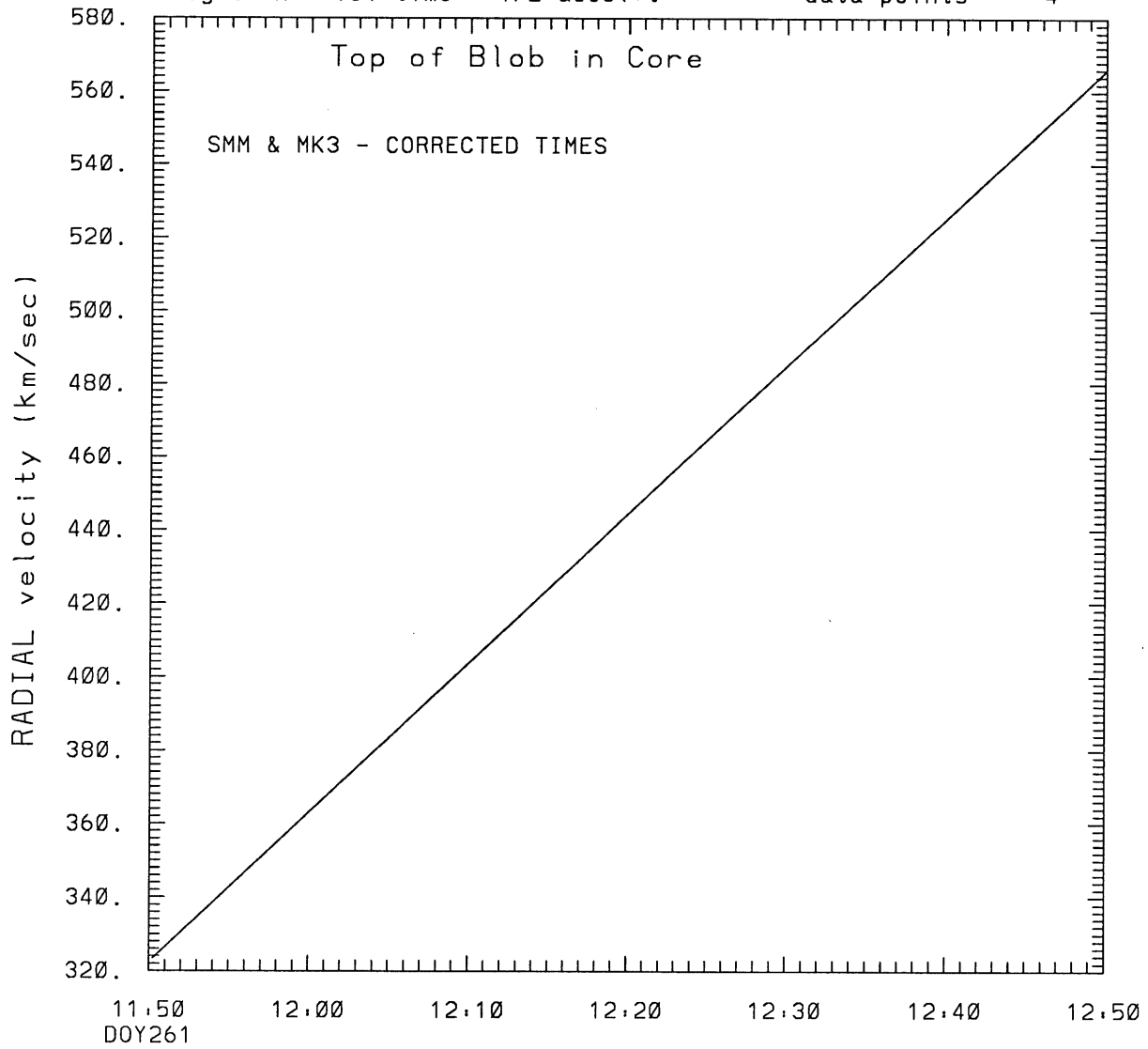


tstart = DOY261 11.21 +/- 20.4 [min.]

angular acceleration = 0.409E-08 +/- 0.828E-08 [rad/sec**2]

SMM C/P 1989 DOY261 323 +/- 8 degrees

height= h + vel*time + 1/2*accel*t # data points = 4



DOY261

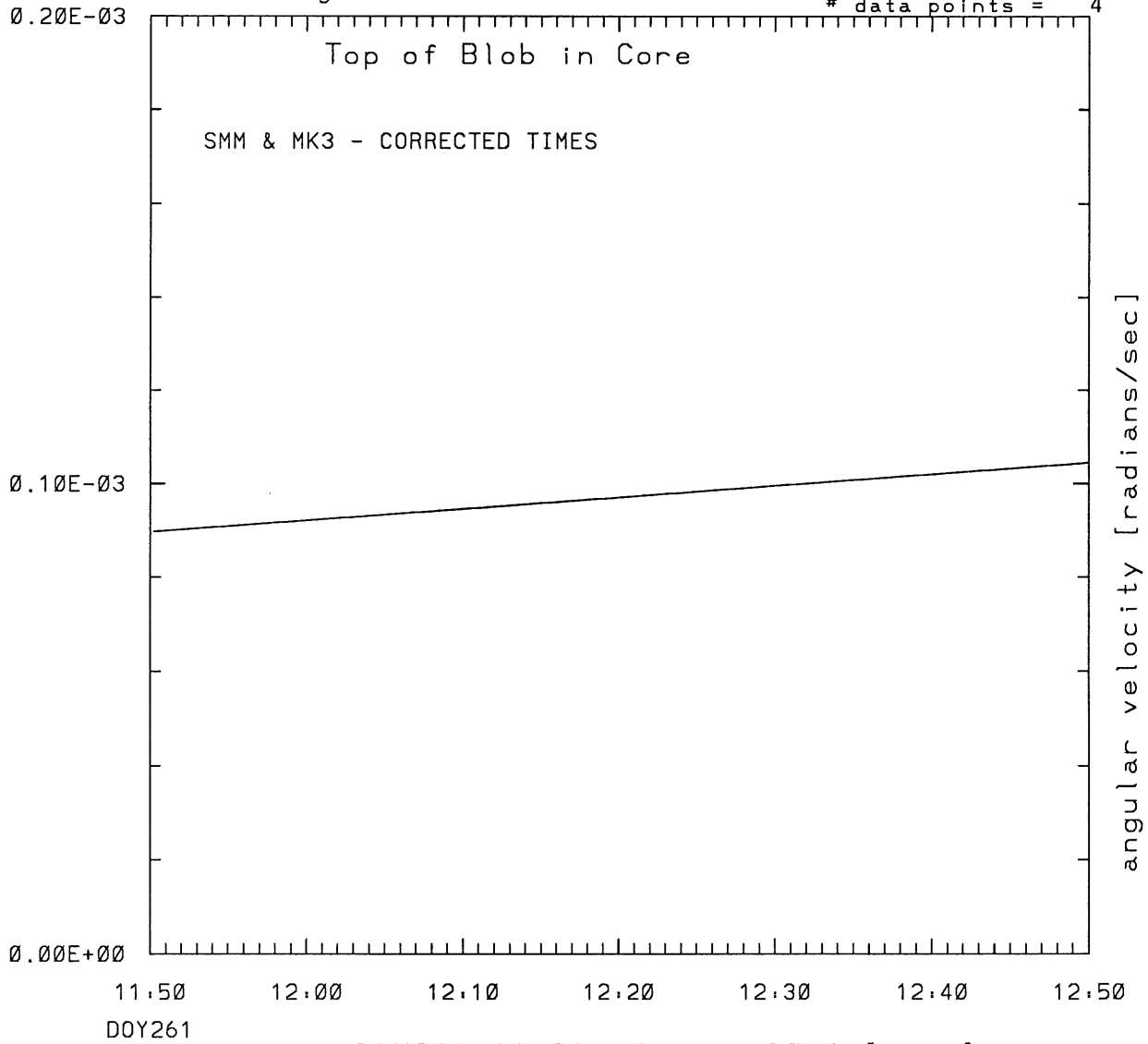
tstart=DOY261 11:21 +/- 20.4 [min.]

radial acceleration=0.676E-01 km/sec**2

SMM C/P 1989 DOY261 323 +/- 8 degrees

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

data points = 4



DOY261

tstart=DOY261 11:21 +/- 20.4 [min.]

angular acceleration=0.409E-08 +/-

0.828E-08 [rad/sec**2]

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	261	11:56:30	1.88 +/- 0.10	317.0 +/- 0.5			SMM
1989	261	12: 4:46	2.05 +/- 0.10	320.0 +/- 0.5			SMM
1989	261	12:21:16	2.74 +/- 0.10	325.0 +/- 0.5			SMM
1989	261	12:37:46	3.34 +/- 0.20	331.0 +/- 1.0			SMM

Structure being measured:
Top of Blob in Core

OUTPUT:

START TIME:

Event began at $t = 0 + -0.163E+02 +/- 0.465E+00$ [minutes]
In more convenient units:
Event began at DOY 261 11:34 +/- 0.465E+00 [minutes]

Origin defined at DOY261 11:50

RADIAL INFORMATION:

RADIAL VELOCITY = 420. +/- 28. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.159E+01 +/- 0.561E-01$ [solar radii]
 $c(2) = 0.362E-01 +/- 0.238E-02$ [radii/min]
 $c(2) = 0.420E+03 +/- 0.276E+02$ [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 $c(1) = 0.63735E-01$ [radii] see Bevington pg. 114
error in $c(2) = 0.21486E-02$ [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = $0.9561E-04 +/- 0.2610E-05$ [radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

$a(1) = 315. +/- 0.$ [degrees]
 $a(2) = 0.329E+00 +/- 0.897E-02$ [degrees/min]
 $a(2) = 0.956E-04 +/- 0.261E-05$ [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 11:56 = 420. km/sec

The RADIAL velocity at 12: 4 = 420. km/sec

The RADIAL velocity at 12:21 = 420. km/sec

The RADIAL velocity at 12:37 = 420. 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 = 0.158E+02
Error in time = 0.26603E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.369E-02
Reduced Chi Squared = 0.837E-02
Chi Squared = 0.167E-01
The probability for exceeding chi square = 0.996E+00

The correlation coefficient = 0.997E+00
The probability that no LINEAR correlation exists between the variables = 0.33791
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	261	11:56:30	1.88 +/- 0.10	317.0 +/- 0.5			SMM
1989	261	12: 4:46	2.05 +/- 0.10	320.0 +/- 0.5			SMM
1989	261	12:21:16	2.74 +/- 0.10	325.0 +/- 0.5			SMM
1989	261	12:37:46	3.34 +/- 0.20	331.0 +/- 1.0			SMM

Structure being measured:

Top of Blob in Core

OUTPUT:

START TIME:

Event began at t = 0 + -0.291E+02 +/- 0.204E+02 [minutes]

In more convenient units:

Event began at DOY 261 11:21 +/- 0.204E+02 [minutes]

Origin defined at DOY261 11:50

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.676E-01 +/- 0.794E-01 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.166E+01 +/- 0.101E+00 [solar radii]
 c(2) = 0.278E-01 +/- 0.102E-01 [radii/min]
 c(2) = 0.322E+03 +/- 0.118E+03 [km/sec]
 c(3) = 0.175E-03 +/- 0.205E-03 [radii/min**2]
 c(3) = 0.676E-01 +/- 0.794E-01 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.15156E+00 [radii] Bevington pg 154 (8-30)
 Exact error in c(1) = 0.56626E-01 [radii] Bevington pg 154 (8-28)
 Approximate error in c(2) = 0.14311E-01 [radii/min] Bevington pg 154 (8-30)
 Exact error in c(2) = 0.60798E-02 [radii/min] Bevington pg 154 (8-28)
 Approximate error in c(3) = 0.25702E-03 [radii/min**2] Bevington pg 154 (8-30)
 Exact error in c(3) = 0.11623E-03 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= 0.4095E-08 +/- 0.8280E-08[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 315. +/- 0. [degrees]
 a(2) = 0.308E+00 +/- 0.423E-01 [degrees/min]
 a(2) = 0.897E-04 +/- 0.123E-04 [rad/sec]
 a(3) = 0.422E-03 +/- 0.854E-03 [degrees/min**2]
 a(3) = 0.409E-08 +/- 0.828E-08 [rad/sec**2]

The RADIAL velocity at 11:56 = 349. km/sec

The RADIAL velocity at 12: 4 = 382. km/sec

The RADIAL velocity at 12:21 = 449. km/sec

The RADIAL velocity at 12:37 = 516. 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 = 0.158E+02

Value of reduced Chi Squared returned from nllst2 = 0.406E-02

Reduced Chi Squared = 0.216E-01

Chi Squared = 0.216E-01

The probability for exceeding chi square = 0.949E+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 = 0.8656E+00

The correlation between the data and the time² term = 0.7879E+00

The correlation between the data and the complete equation of motion=0.9988E+00

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