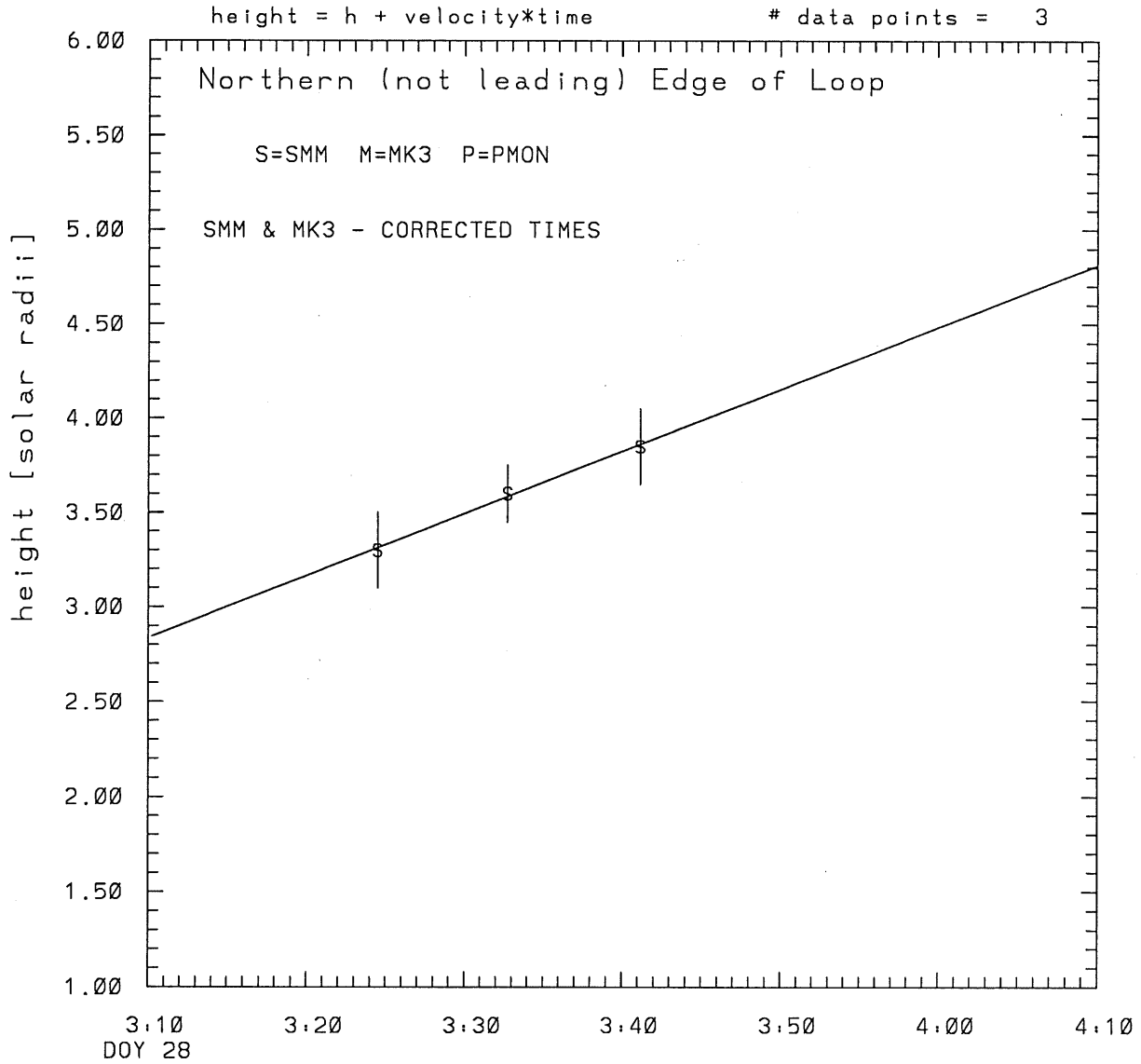
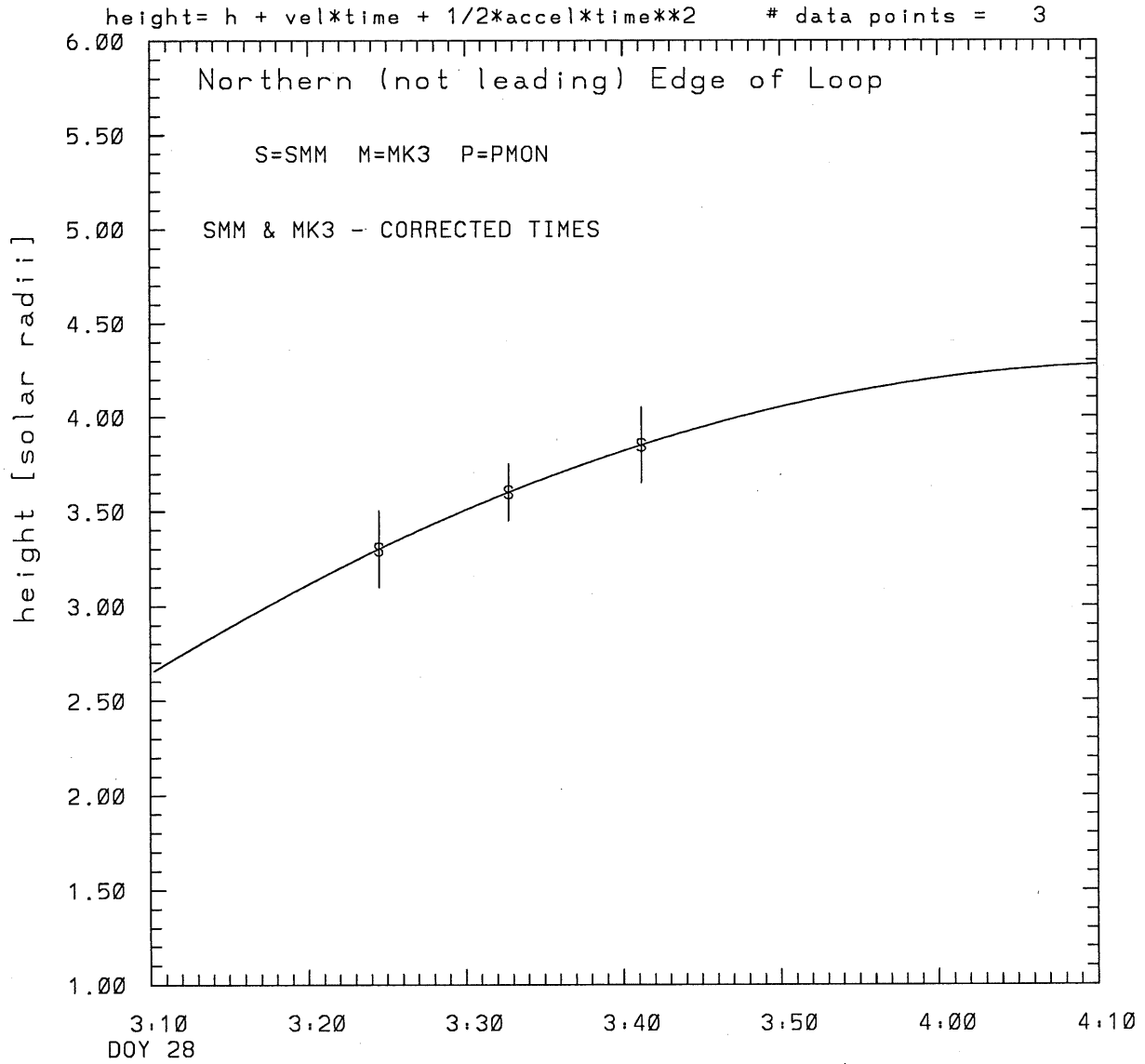


SMM C/P 1989 DOY 28 315 +/- 0 degrees



tstart=DOY 28 2:16 +/- 1.9 [min.]
radial velocity= 382. +/- 19. [km/sec]

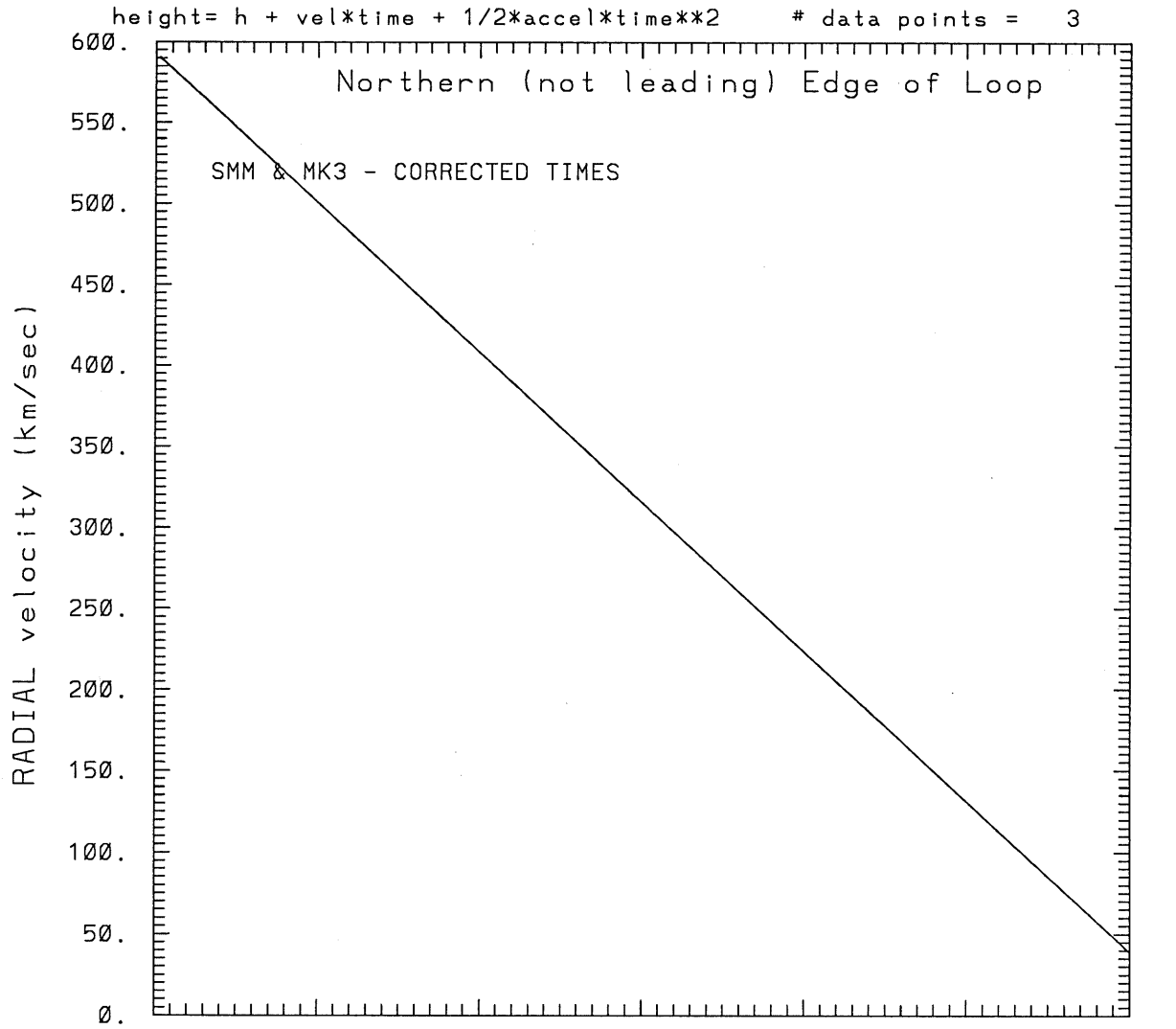
SMM C/P 1989 DOY 28 315 +/- 0 degrees



tstart=DOY 28 2.45 +/- 0.0 [min.]

radial acceleration = -0.1539 +/- 0.0000 [km/sec**2]

SMM C/P 1989 DOY 28 315 +/- 0 degrees



3.10
DOY 28

tstart=DOY 28 2.45 +/- 0.0 [min.]

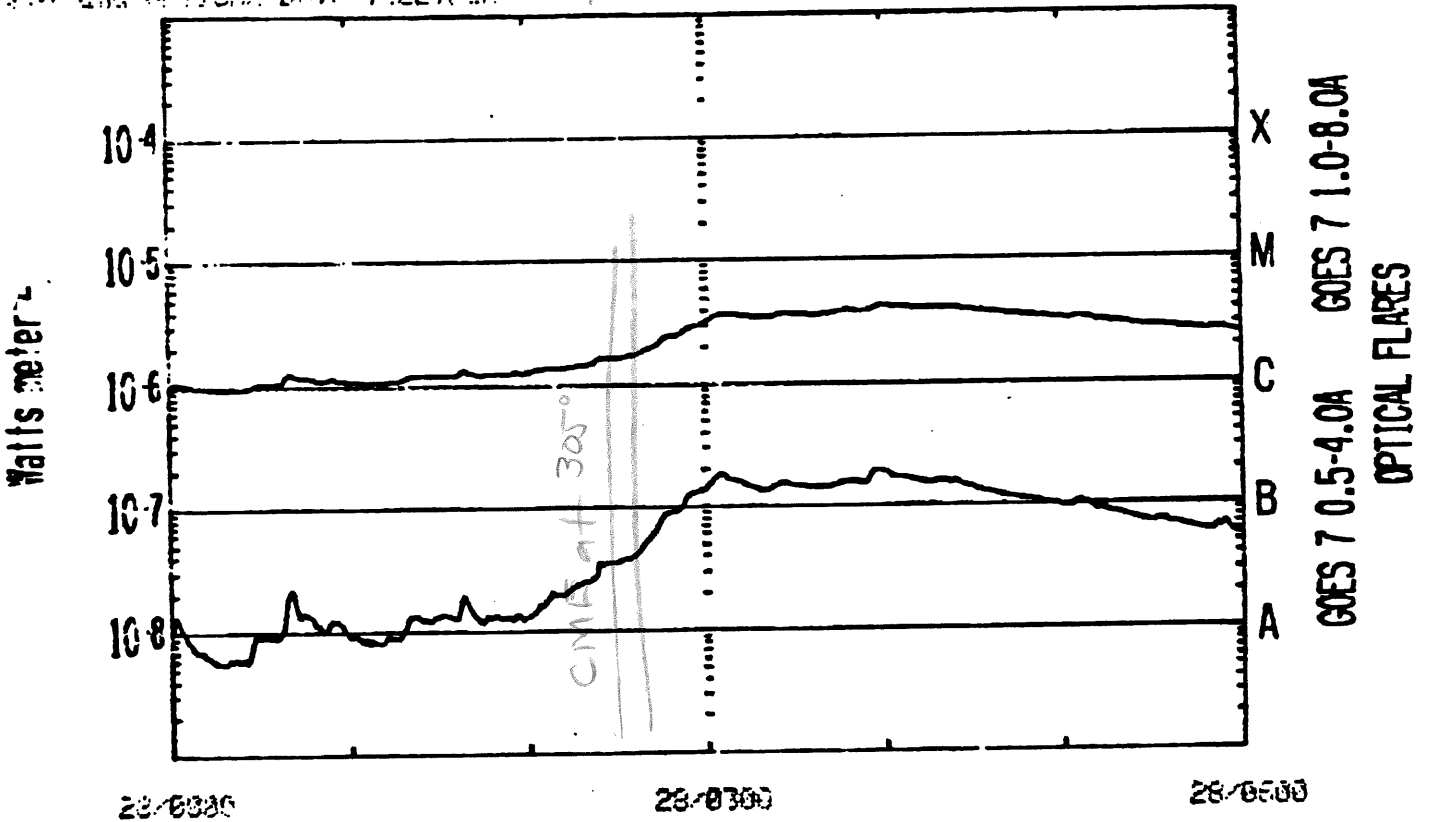
radial acceleration = $-.154E+00$ km/sec**2

1989 Day 28

Top of Inner Cavity
[2:35] 1st order
[2:43] 2nd order
STOP
Pat.

NEW AND OPTICAL DATA TOGETHER

BEGIN: 28 JAN 89



GOES-7 1 MIN DATA; OPTICAL FLARE DUR. IMP. REGION

SAA's
NIGHT

RUN: 2018UT
2 FEB 89

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1989	28	3:24:29	3.30 +/- 0.20	315.0 +/- 1.0	1.0	SMM	
1989	28	3:32:45	3.60 +/- 0.15	315.0 +/- 1.0	1.0	SMM	
1989	28	3:41:11	3.85 +/- 0.20	315.0 +/- 1.0	1.0	SMM	

Structure being measured:
Northern (not leading) Edge of Loop

OUTPUT:

START TIME:

Event began at t = 0 + -0.558E+02 +/- 0.194E+01 [minutes]
In more convenient units:
Event began at DOY 28 2:16 +/- 0.194E+01 [minutes]

Origin defined at DOY 28 3:10

RADIAL INFORMATION:

RADIAL VELOCITY = 382. +/- 19. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.284E+01 +/- 0.380E-01 [solar radii]
c(2) = 0.329E-01 +/- 0.161E-02 [radii/min]
c(2) = 0.382E+03 +/- 0.187E+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)= 0.47557E-01 [radii] see Bevington pg. 114
error in c(2)= 0.19980E-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) = 315. +/- 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 3:24 = 382. km/sec

The RADIAL velocity at 3:32 = 382. km/sec

The RADIAL velocity at 3:41 = 382. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.28
Standard Deviation in start time measurement = 0.682E+01
Error in time = 0.71673E+00 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.288E-03
Reduced Chi Squared = 0.111E-02
Chi Squared = 0.111E-02
The probability for exceeding chi square = 0.986E+00

The correlation coefficient = 0.998E+00
The probability that no LINEAR correlation exists between the variables = 0.36911
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
1989	28	3:24:29	3.30 +/-	0.20	315.0 +/-	1.0	SMM
1989	28	3:32:45	3.60 +/-	0.15	315.0 +/-	1.0	SMM
1989	28	3:41:11	3.85 +/-	0.20	315.0 +/-	1.0	SMM

Structure being measured:
Northern (not leading) Edge of Loop

OUTPUT:

START TIME:

Event began at $t = 0 + -0.266E+02 \pm 0.000E+00$ [minutes]
In more convenient units:
Event began at DOY 28 2:45 +/- 0.000E+00 [minutes]

Origin defined at DOY 28 3:10

RADIAL INFORMATION:

RADIAL ACCELERATION = $-0.154E+00 \pm 0.153E-05$ km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.264E+01 +/- 0.199E-05 [solar radii]
c(2) = 0.511E-01 +/- 0.182E-06 [radii/min]
c(2) = 0.593E+03 +/- 0.211E-02 [km/sec]
c(3) = -0.398E-03 +/- 0.396E-08 [radii/min**2]
c(3) = -0.154E+00 +/- 0.153E-05 [km/sec**2]

ANGULAR INFORMATION:

ANGULAR ACCELERATION= $0.0000E+00 \pm 0.0000E+00$ [radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 315. +/- 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 3:24 = 459. km/sec

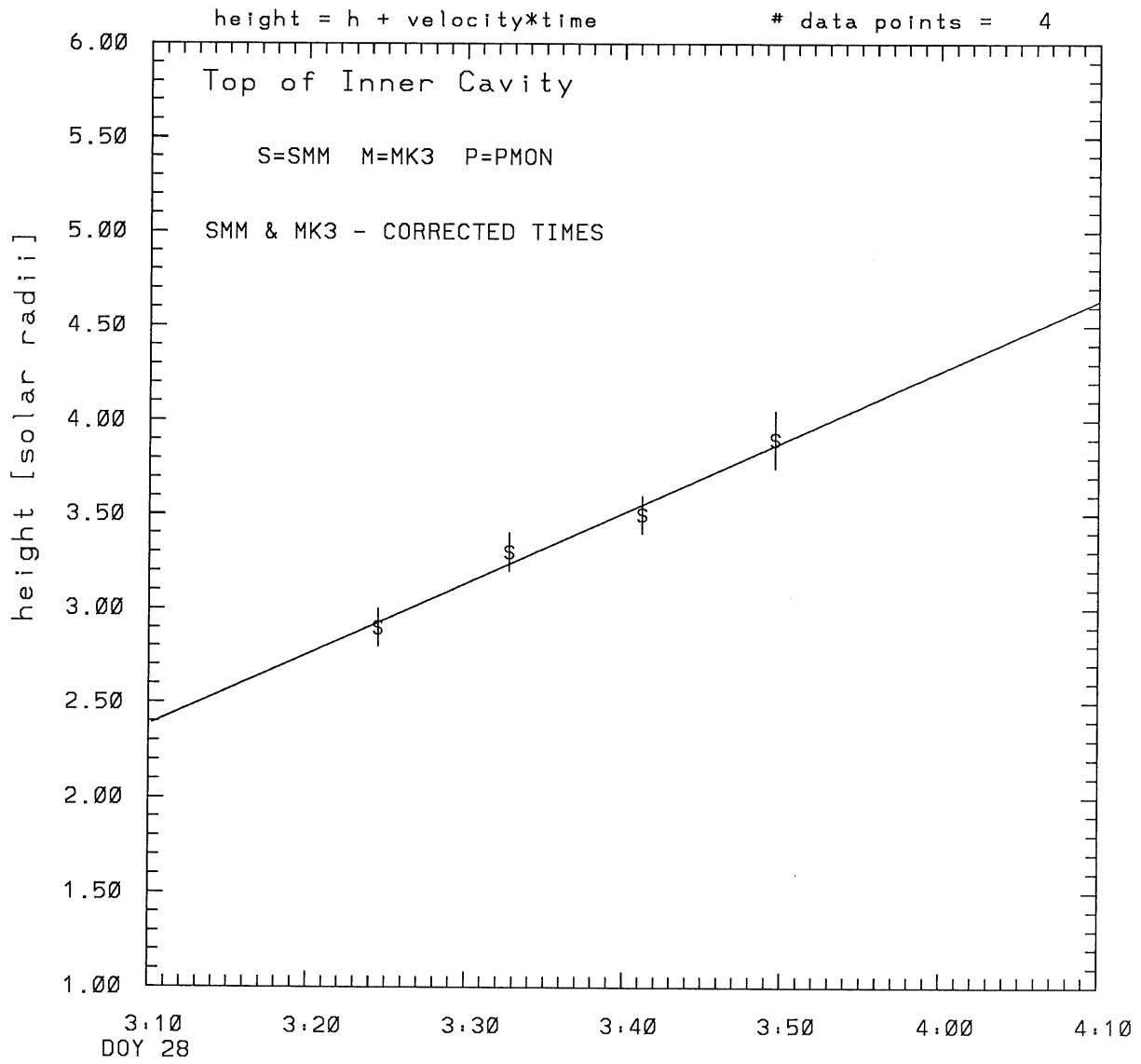
The RADIAL velocity at 3:32 = 383. km/sec

The RADIAL velocity at 3:41 = 305. km/sec

The following info is for estimating goodness of the fit

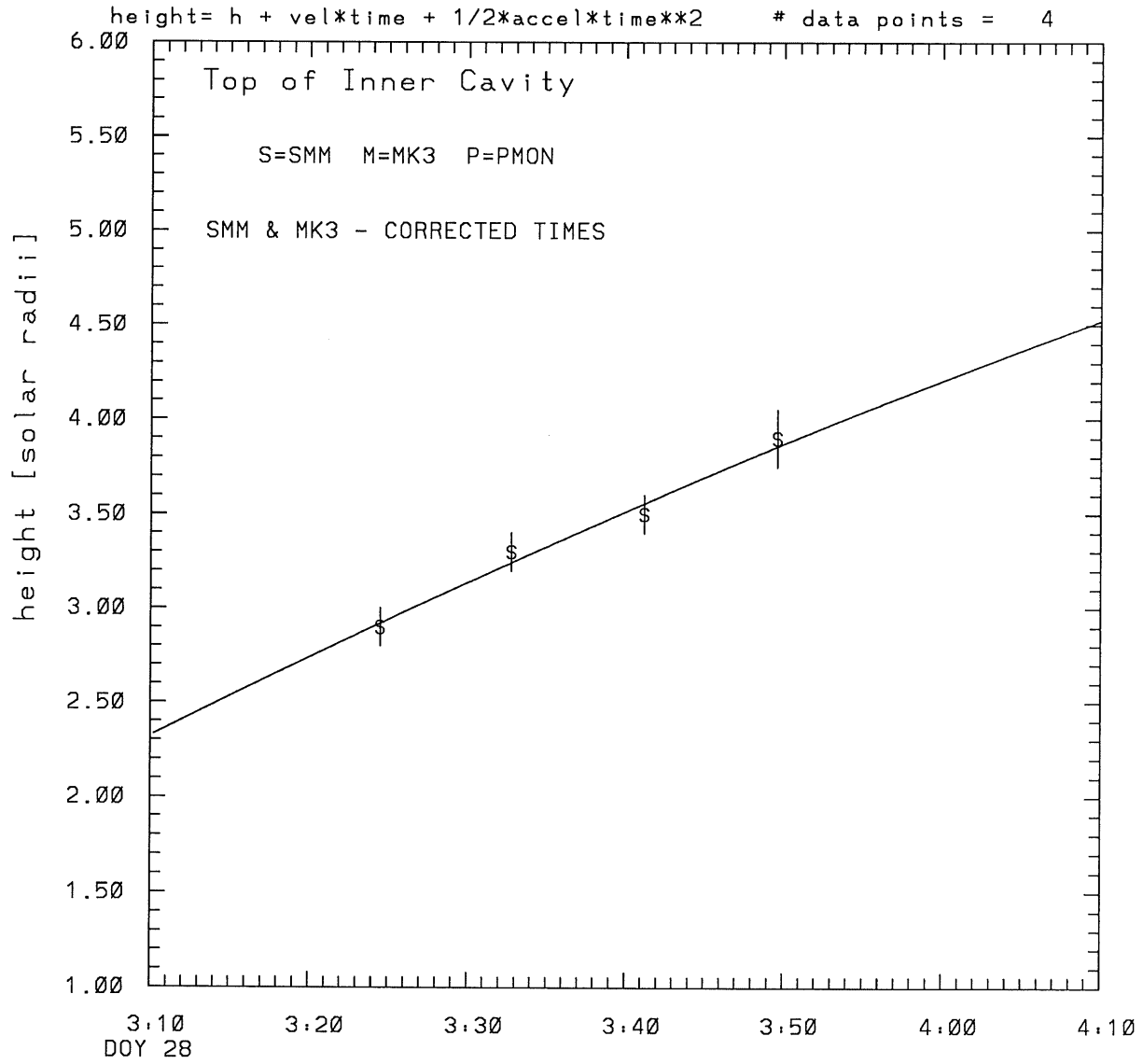
Number data points = number of coefficients. No error analysis is possible.
Correlation coefficient is not computable!

SMM C/P 1989 DOY 28 315 +/- 0 degrees



tstart=DOY 28 2:35 +/- 1.2 [min.]
radial velocity= 436. +/- 38. [km/sec]

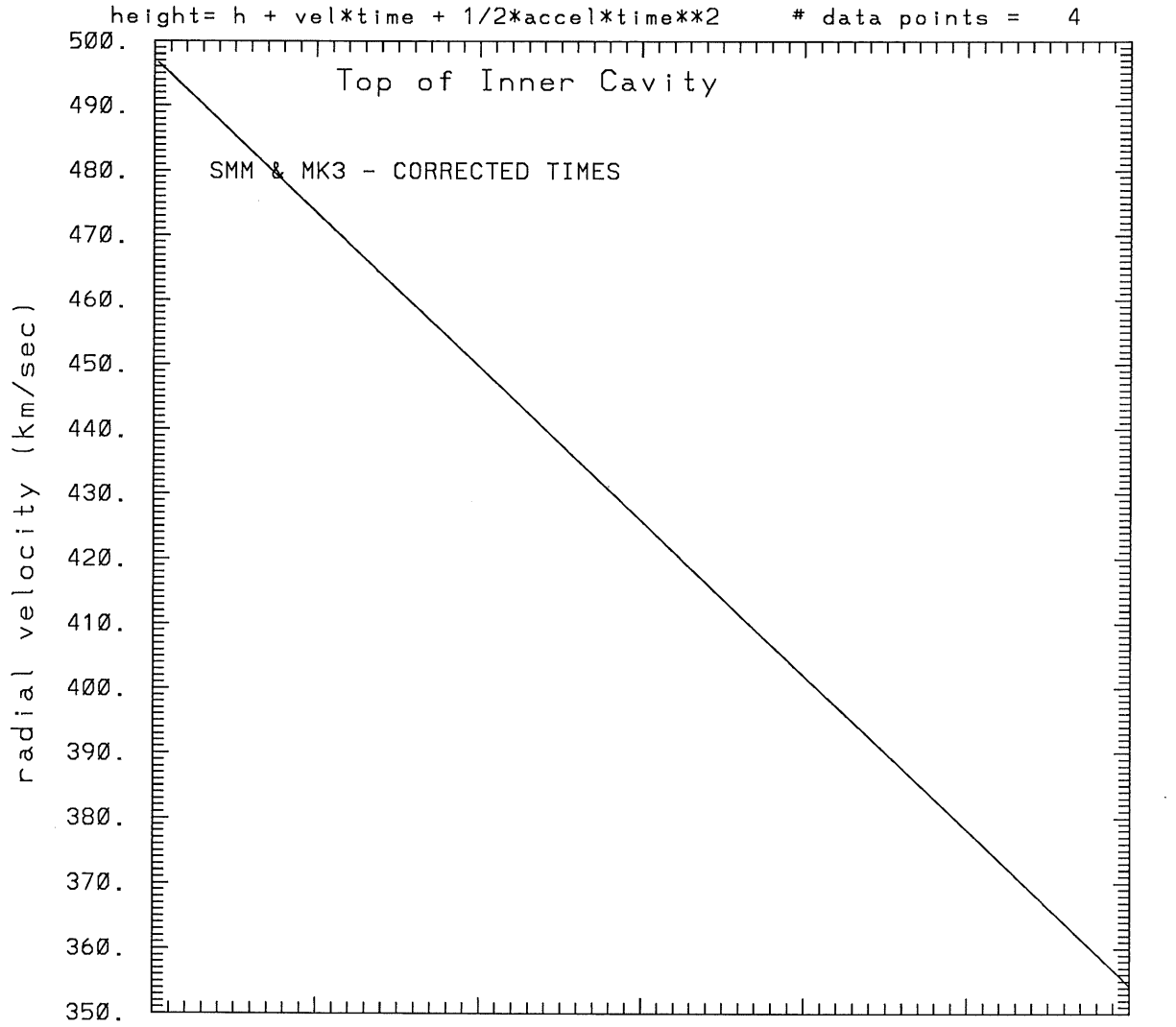
SMM C/P 1989 DOY 28 315 +/- 0 degrees



tstart=DOY 28 2.43 +/- 94.4 [min.]

radial acceleration = $-0.0397 +/- 0.1957$ [km/sec**2]

SMM C/P 1989 DOY 28 315 +/- 0 degrees



DOY 28

tstart=DOY 28 2:43 +/- 94.4 [min.]

radial acceleration = $-.397E-01$ km/sec**2

This is a 1 order run

INPUT:

year	day	time	radii	error in radius	angle	error in angle	datatype
1989	28	3:24:29	2.90	+/- 0.10	315.0	+/- 0.5	SMM
1989	28	3:32:45	3.30	+/- 0.10	315.0	+/- 0.5	SMM
1989	28	3:41:11	3.50	+/- 0.10	315.0	+/- 0.5	SMM
1989	28	3:49:37	3.90	+/- 0.15	315.0	+/- 0.5	SMM

Structure being measured:
Top of Inner Cavity

OUTPUT:

START TIME:

Event began at $t = 0 + -0.368E+02 +/- 0.118E+01$ [minutes]
In more convenient units:
Event began at DOY 28 2:35 +/- 0.118E+01 [minutes]

Origin defined at DOY 28 3:10

RADIAL INFORMATION:

RADIAL VELOCITY = 436. +/- 38. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.238E+01 +/- 0.861E-01 [solar radii]
c(2) = 0.375E-01 +/- 0.326E-02 [radii/min]
c(2) = 0.436E+03 +/- 0.378E+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)= 0.99268E-01 [radii] see Bevington pg. 114
error in c(2)= 0.34723E-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) = 315. +/- 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 3:24 = 0. km/sec

The TOTAL velocity at 3:24 = 436. km/sec

The TANGENTIAL velocity at 3:32 = 0. km/sec

The TOTAL velocity at 3:32 = 436. km/sec

The TANGENTIAL velocity at 3:41 = 0. km/sec

The TOTAL velocity at 3:41 = 436. km/sec

The TANGENTIAL velocity at 3:49 = 0. km/sec

The TOTAL velocity at 3:49 = 436. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.42

Standard Deviation in start time measurement = 0.937E+01

Error in time = 0.24519E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.307E-02

Reduced Chi Squared = 0.105E-01

Chi Squared = 0.210E-01

The probability for exceeding chi square = 0.997E+00

The correlation coefficient = 0.992E+00

The probability that no LINEAR correlation exists between the variables = 0.7981E-02

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

This is a 2 order run

INPUT:

year	day	time	radii	error in radius	error in angle	angle	datatype
1989	28	3:24:29	2.90	+/- 0.10	315.0	+/- 0.5	SMM
1989	28	3:32:45	3.30	+/- 0.10	315.0	+/- 0.5	SMM
1989	28	3:41:11	3.50	+/- 0.10	315.0	+/- 0.5	SMM
1989	28	3:49:37	3.90	+/- 0.15	315.0	+/- 0.5	SMM

Structure being measured:

Top of Inner Cavity

OUTPUT:

START TIME:

Event began at $t = 0 + -0.288E+02 +/- 0.944E+02$ [minutes]

In more convenient units:

Event began at DOY 28 2:43 +/- 0.944E+02 [minutes]

Origin defined at DOY 28 3:10

RADIAL INFORMATION:

RADIAL ACCELERATION = $-0.397E-01 +/- 0.196E+00$ km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = $0.232E+01 +/- 0.320E+00$ [solar radii]
c(2) = $0.429E-01 +/- 0.265E-01$ [radii/min]
c(2) = $0.497E+03 +/- 0.308E+03$ [km/sec]
c(3) = $-0.103E-03 +/- 0.506E-03$ [radii/min**2]
c(3) = $-0.397E-01 +/- 0.196E+00$ [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = $0.45425E+00$ [radii] Bevington pg 154 (8-30)
Exact error in c(1) = $0.19115E+00$ [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = $0.36558E-01$ [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = $0.17558E-01$ [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = $0.66919E-03$ [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = $0.33386E-03$ [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) = 315. +/- 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 3:24 = 0. km/sec

The TOTAL velocity at 3:24 = 463. km/sec

The TANGENTIAL velocity at 3:32 = 0. km/sec

The TOTAL velocity at 3:32 = 443. km/sec

The TANGENTIAL velocity at 3:41 = 0. km/sec

The TOTAL velocity at 3:41 = 423. km/sec

The TANGENTIAL velocity at 3:49 = 0. km/sec

The TOTAL velocity at 3:49 = 403. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.42

Standard Deviation in start time measurement = 0.937E+01

Value of reduced Chi Squared returned from nllst2 = 0.452E-02

Reduced Chi Squared = 0.241E-01

Chi Squared = 0.241E-01

The probability for exceeding chi square = 0.946E+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 = 0.9226E+00

The correlation between the data and the time**2 term = 0.8802E+00

The correlation between the data and the complete equation of motion = 0.9753E+00

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