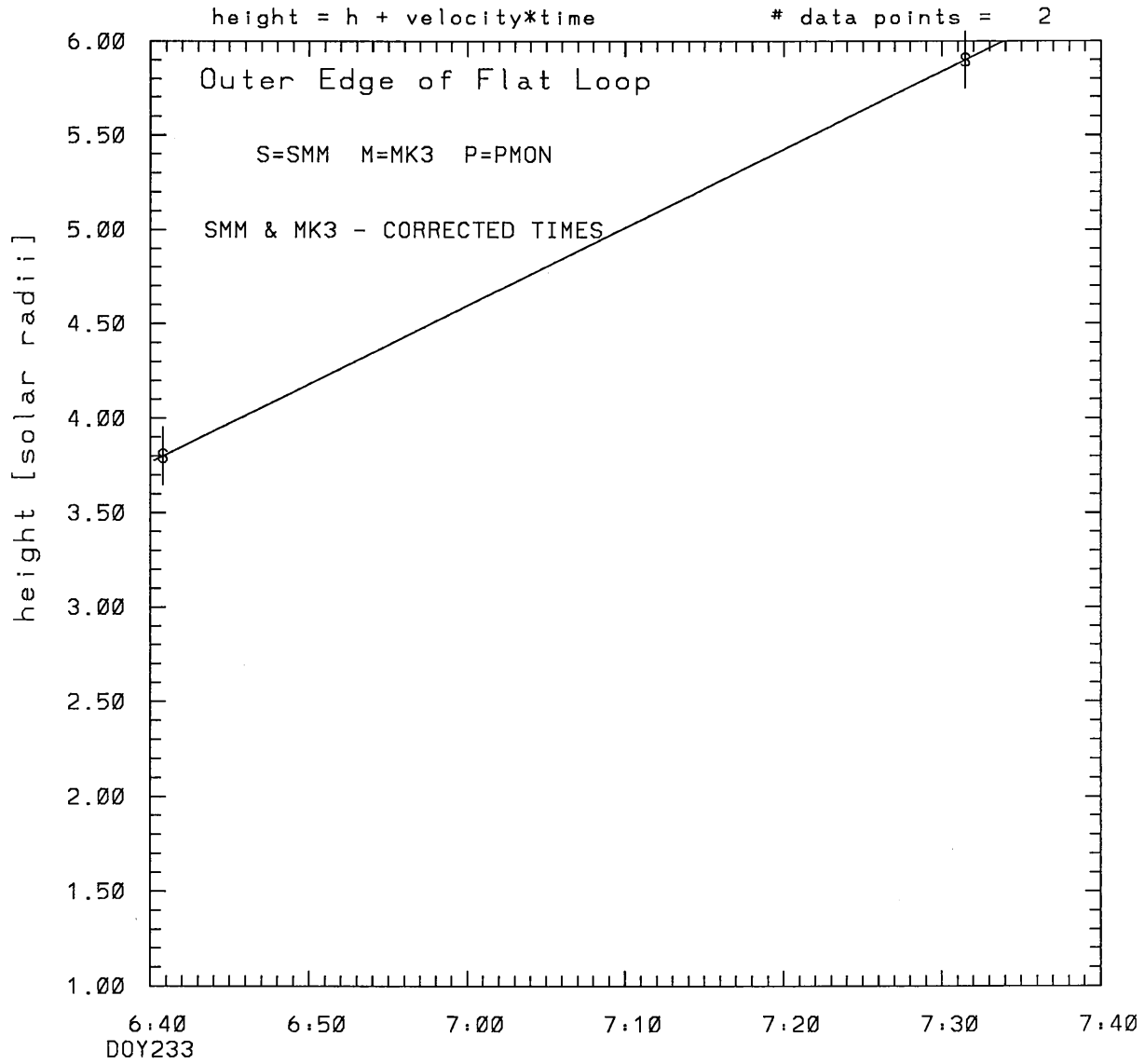


SMM C/P 1989 DOY233 295 +/- 0 degrees



tstart=DOY233 5:35 +/- 0.0 [min.]
radial velocity= 481. +/- 0. [km/sec]

1989 DOY 233

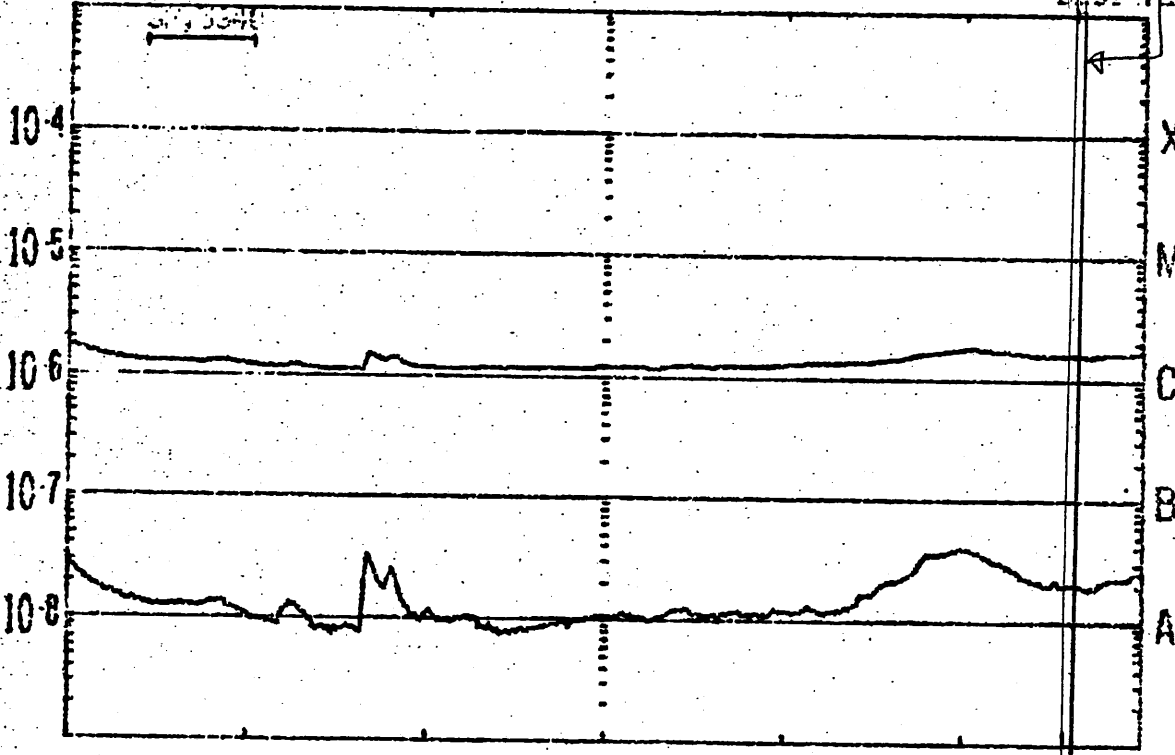
JOIN THE OPTICAL DATA TOGETHER

STOP
Bot.

Outer Edge of Flare Loop, center = 290°
[5:35] 1st order only
Top of Cavity
[5:38] 1st order
[5:39] 2nd order

BEGIN: 21 AUG 89

Watts meter 2



21/0000

21/0525

21/0505

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

OPTICAL FLARES

SAA's
NIGHT

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

BUN: 13:00
23 AUG 89

This is a 1 order run

INPUT:

year	day	time	radii	error in radius	error in angle	datatype
1989	233	6:40:48	3.80	+/- 0.15	295.0 +/- 1.0	SMM
1989	233	7:31:28	5.90	+/- 0.15	295.0 +/- 1.0	SMM

Structure being measured:

Outer Edge of Flat Loop

OUTPUT:

START TIME:

Event began at $t = 0 + -0.668E+02 +/- 0.000E+00$ [minutes]

In more convenient units:

Event began at DOY 233 5:35 +/- 0.000E+00 [minutes]

Origin defined at DOY233 6:40

RADIAL INFORMATION:

RADIAL VELOCITY = 481. +/- 0. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.377E+01 +/- 0.969E-06 [solar radii]
c(2) = 0.414E-01 +/- 0.266E-07 [radii/min]
c(2) = 0.481E+03 +/- 0.309E-03 [km/sec]
c(3) = 0.000E+00 +/- 0.000E+00 [radii/min**2]
c(3) = 0.000E+00 +/- 0.000E+00 [km/sec**2]

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.0000E+00 +/- 0.0000E+00[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 295. +/- 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 6:40 = 0. km/sec

The TOTAL velocity at 6:40 = 481. km/sec

The TANGENTIAL velocity at 7:31 = 0. km/sec

The TOTAL velocity at 7:31 = 481. km/sec

The following info is for estimating goodness of the fit

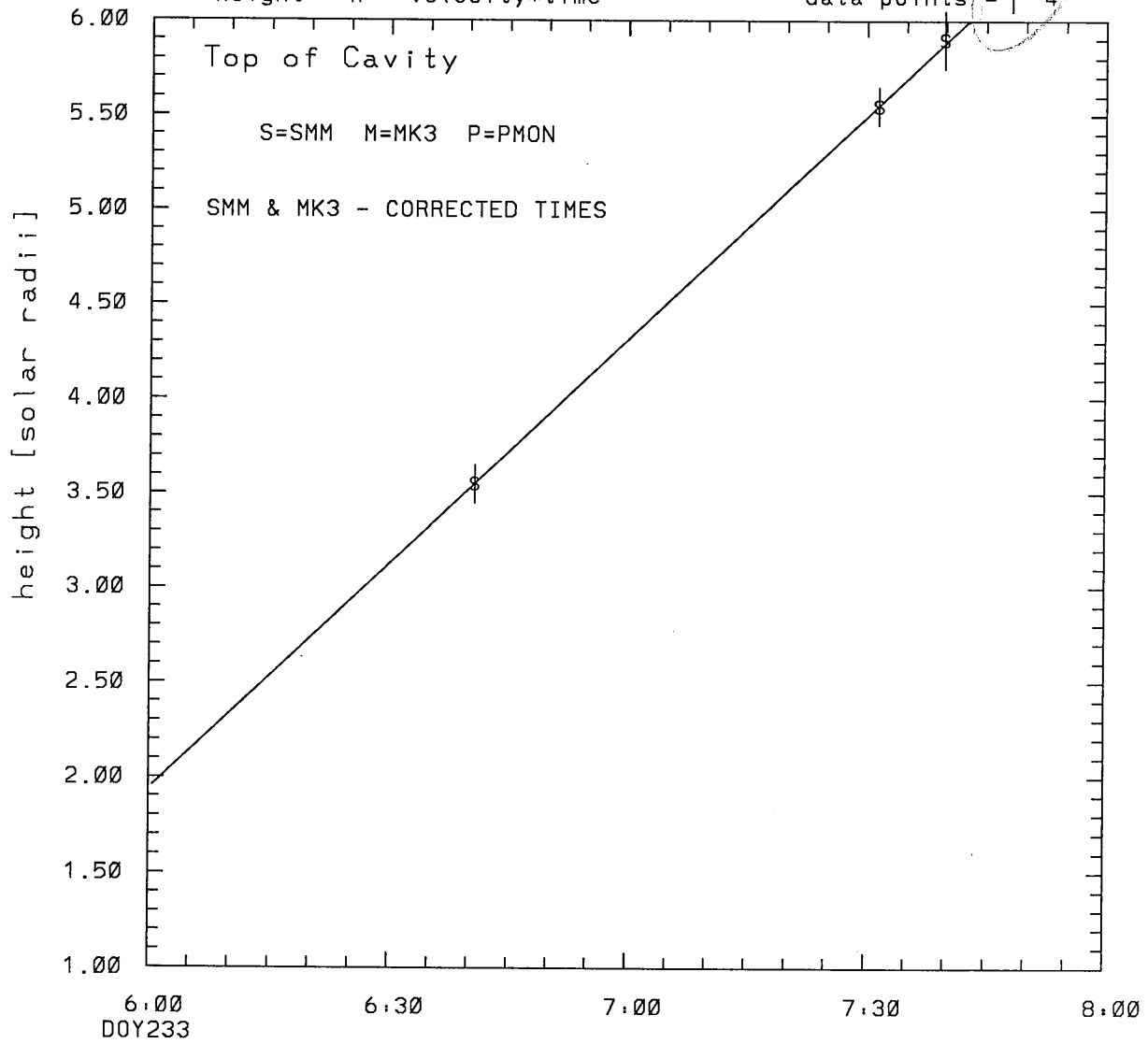
Number data points = number of coefficients. No error analysis is possible.

Correlation coefficient is not computable!

SMM C/P 1989 DOY233 290 +/- 0 degrees

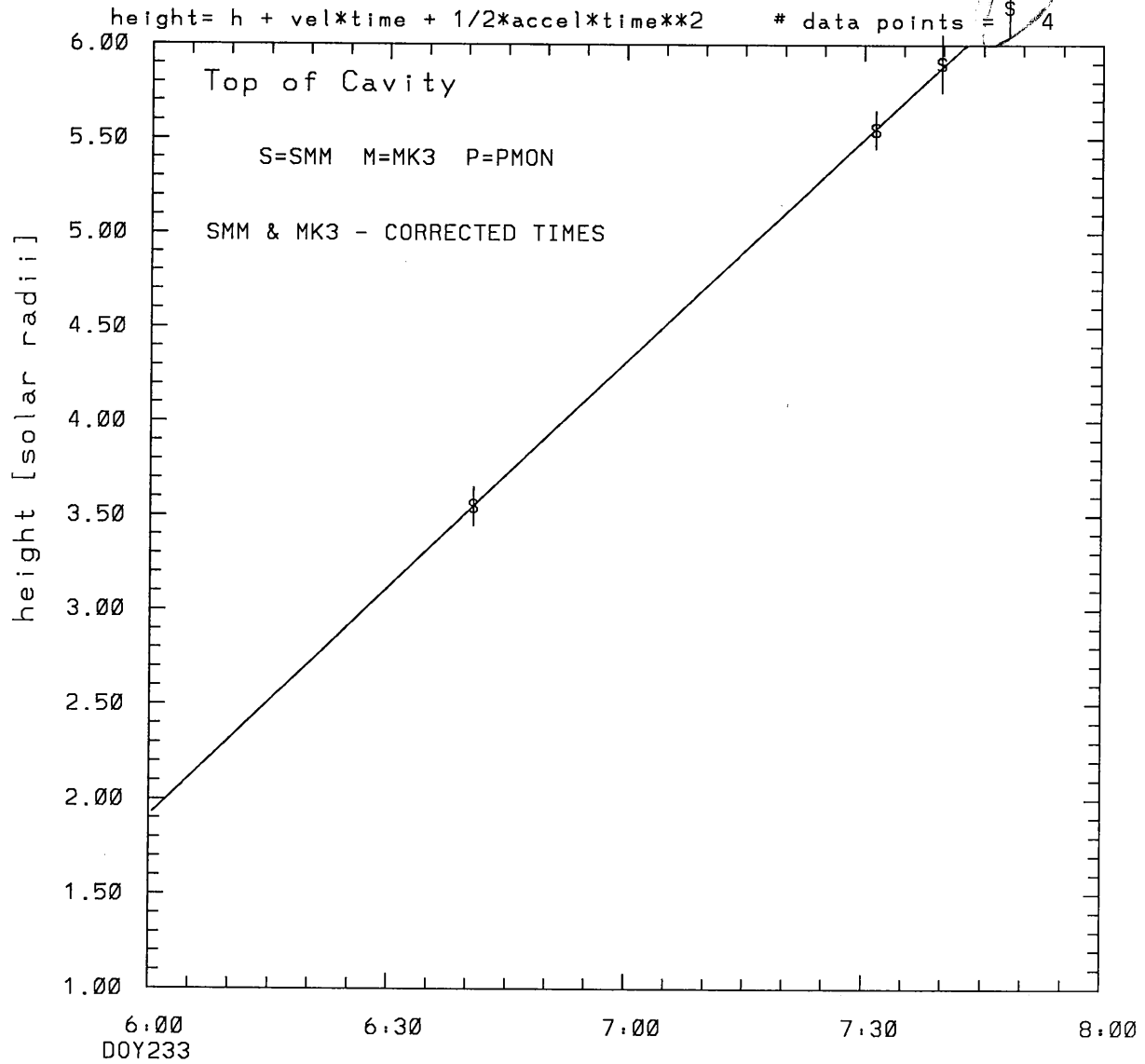
height = h + velocity*time

data points = 4



tstart=DOY233 5.38 +/- 0.0 [min.]
radial velocity= 459. +/- 2. [km/sec]

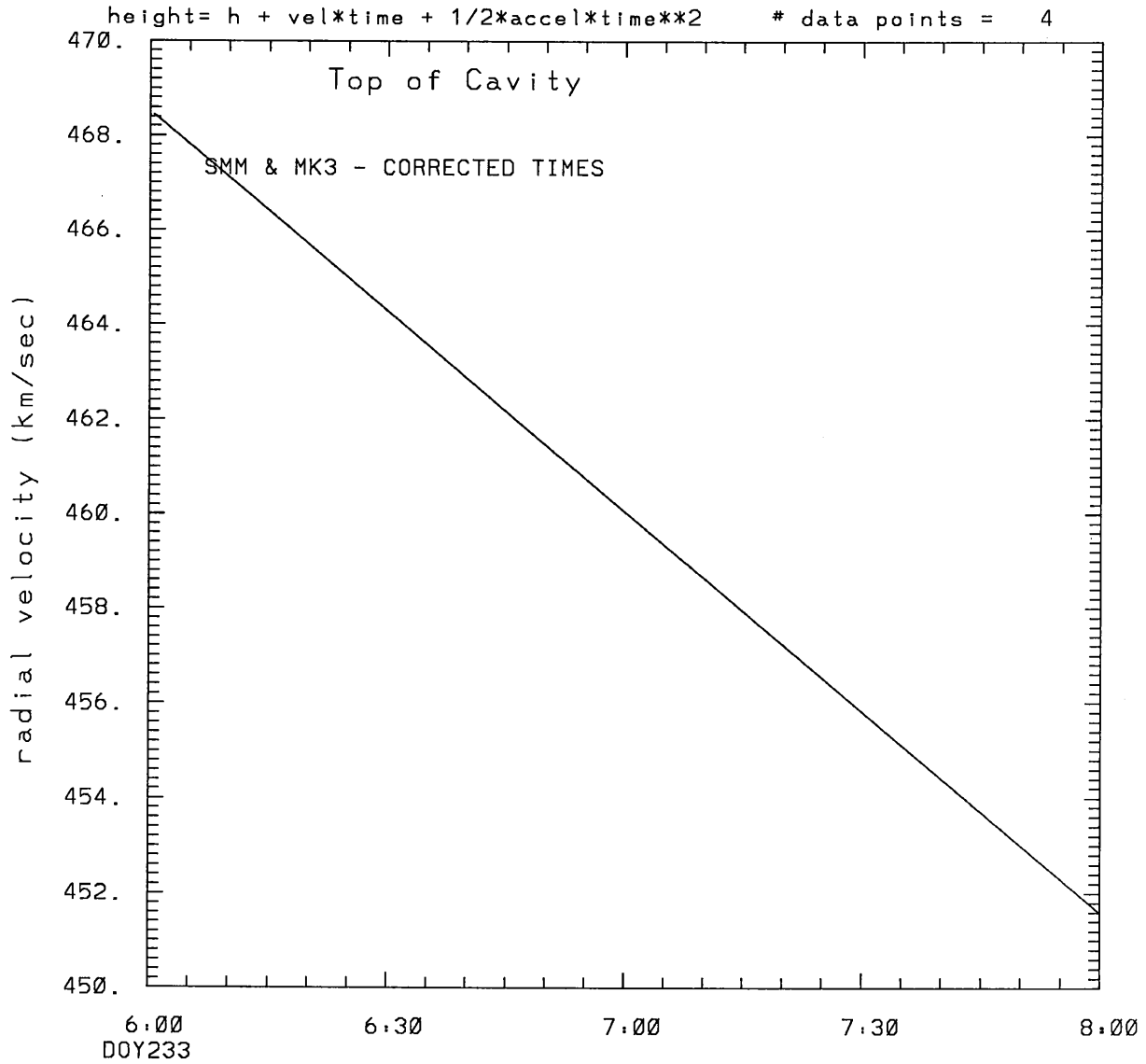
SMM C/P 1989 DOY233 290 +/- 0 degrees



tstart=DOY233 5:39 +/- 38.2 [min.]

radial acceleration=-0.0024 +/- 0.0080 [km/sec**2]

SMM C/P 1989 DOY233 290 +/- 0 degrees



tstart=DOY233 5:39 +/- 38.2 [min.]

radial acceleration = $-.235E-02$ km/sec**2

This is a 1 order run

INPUT:

year	doy	time	radii	error in radius	error in angle	angle	datatype
1989	233	6:40:48	3.55	+/- 0.10	290.0	+/- 1.0	SMM
1989	233	7:31:28	5.55	+/- 0.10	290.0	+/- 1.0	SMM
1989	233	7:39:43	5.90	+/- 0.15	290.0	+/- 1.0	SMM
1989	233	7:48: 9	6.20	+/- 0.15	290.0	+/- 1.0	SMM

Structure being measured:
Top of Cavity

OUTPUT:

START TIME:

Event began at $t = 0 + -0.237E+02 +/- 0.332E-01$ [minutes]

In more convenient units:

Event began at DOY 233 5:38 +/- 0.332E-01 [minutes]

Origin defined at DOY233 6: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 459. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.194E+01 +/- 0.168E-01$ [solar radii]
 $c(2) = 0.395E-01 +/- 0.204E-03$ [radii/min]
 $c(2) = 0.459E+03 +/- 0.237E+01$ [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 $c(1) = 0.29377E-01$ [radii] see Bevington pg. 114

error in $c(2) = 0.33015E-03$ [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) = 290. +/- 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 6:40 = 0. km/sec

The TOTAL velocity at 6:40 = 459. km/sec

The TANGENTIAL velocity at 7:31 = 0. km/sec

The TOTAL velocity at 7:31 = 459. km/sec

The TANGENTIAL velocity at 7:39 = 0. km/sec

The TOTAL velocity at 7:39 = 459. km/sec

The TANGENTIAL velocity at 7:48 = 0. km/sec

The TOTAL velocity at 7:48 = 459. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 1.20

Standard Deviation in start time measurement = 0.262E+02

Error in time = 0.61917E+00 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.126E-03

Reduced Chi Squared = 0.974E-03

Chi Squared = 0.195E-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 = 0.6819E-04

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

This is a 2 order run

INPUT:

year	doy	time	radii	error in radius	error in angle	angle	datatype
1989	233	6:40:48	3.55 +/-	0.10	290.0 +/-	1.0	SMM
1989	233	7:31:28	5.55 +/-	0.10	290.0 +/-	1.0	SMM
1989	233	7:39:43	5.90 +/-	0.15	290.0 +/-	1.0	SMM
1989	233	7:48: 9	6.20 +/-	0.15	290.0 +/-	1.0	SMM

Structure being measured:
Top of Cavity

OUTPUT:

START TIME:

Event began at $t = 0 + -0.225E+02 +/- 0.382E+02$ [minutes]
In more convenient units:
Event began at DOY 233 5:39 +/- 0.382E+02 [minutes]

Origin defined at DOY233 6: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = $-0.235E-02 +/- 0.797E-02$ km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = $0.191E+01 +/- 0.888E-01$ [solar radii]
c(2) = $0.404E-01 +/- 0.292E-02$ [radii/min]
c(2) = $0.469E+03 +/- 0.339E+02$ [km/sec]
c(3) = $-0.608E-05 +/- 0.206E-04$ [radii/min**2]
c(3) = $-0.235E-02 +/- 0.797E-02$ [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = $0.15687E+00$ [radii] Bevington pg 154 (8-30)
Exact error in c(1) = $0.41476E-01$ [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = $0.50493E-02$ [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = $0.14369E-02$ [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = $0.34851E-04$ [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = $0.10328E-04$ [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) = 290. +/- 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 6:40 = 0. km/sec

The TOTAL velocity at 6:40 = 463. km/sec

The TANGENTIAL velocity at 7:31 = 0. km/sec

The TOTAL velocity at 7:31 = 456. km/sec

The TANGENTIAL velocity at 7:39 = 0. km/sec

The TOTAL velocity at 7:39 = 454. km/sec

The TANGENTIAL velocity at 7:48 = 0. km/sec

The TOTAL velocity at 7:48 = 453. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 1.20

Standard Deviation in start time measurement = 0.262E+02

Value of reduced Chi Squared returned from nllst2 = 0.180E-03

Reduced Chi Squared = 0.170E-02

Chi Squared = 0.170E-02

The probability for exceeding chi square = 0.989E+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 = 0.1084E+01

The correlation between the data and the time**2 term = 0.1064E+01

The correlation between the data and the complete equation of motion = 0.9996E+00

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