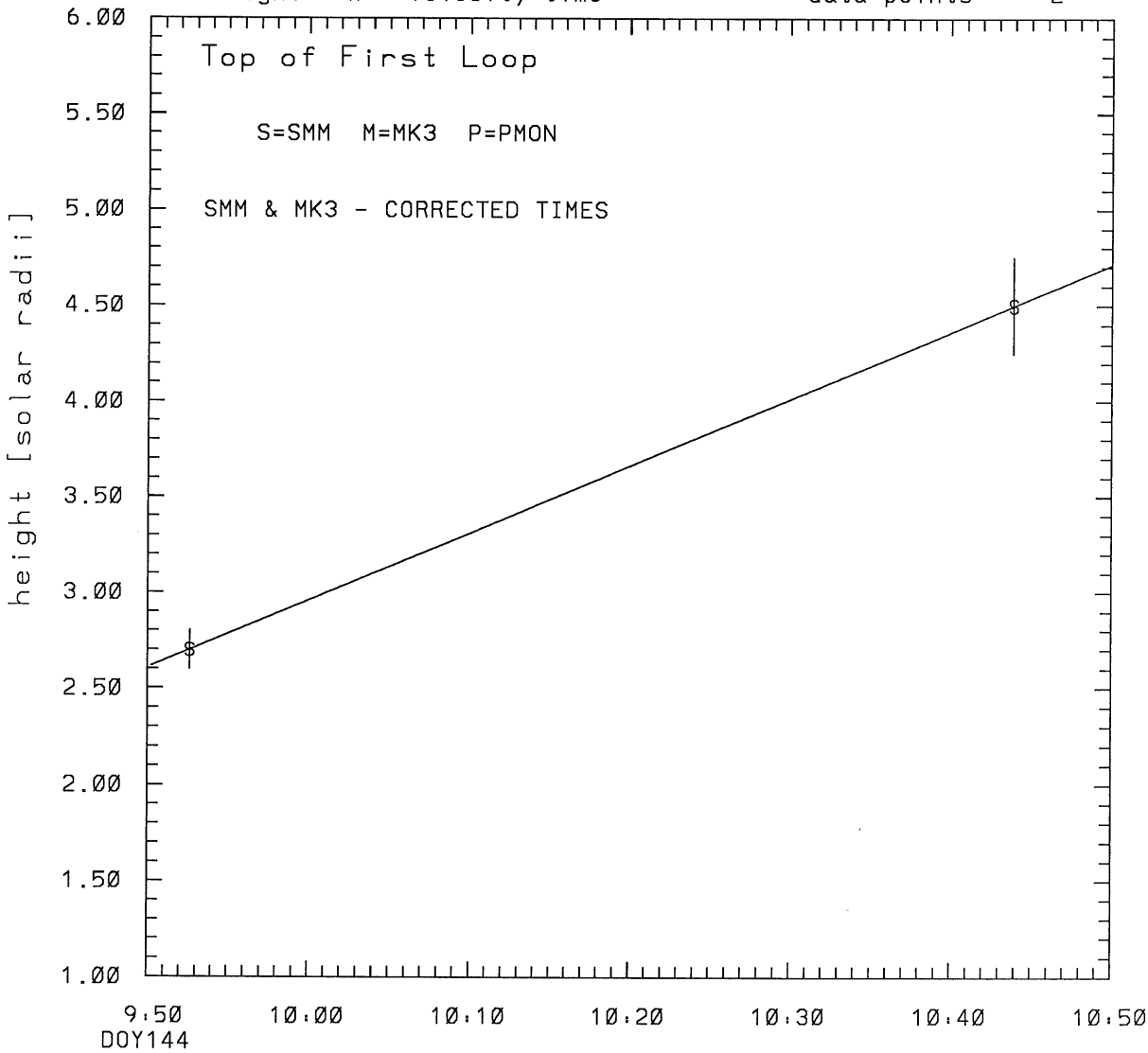
SMM C/P 1989 DOY144 240 +/- 0 degrees

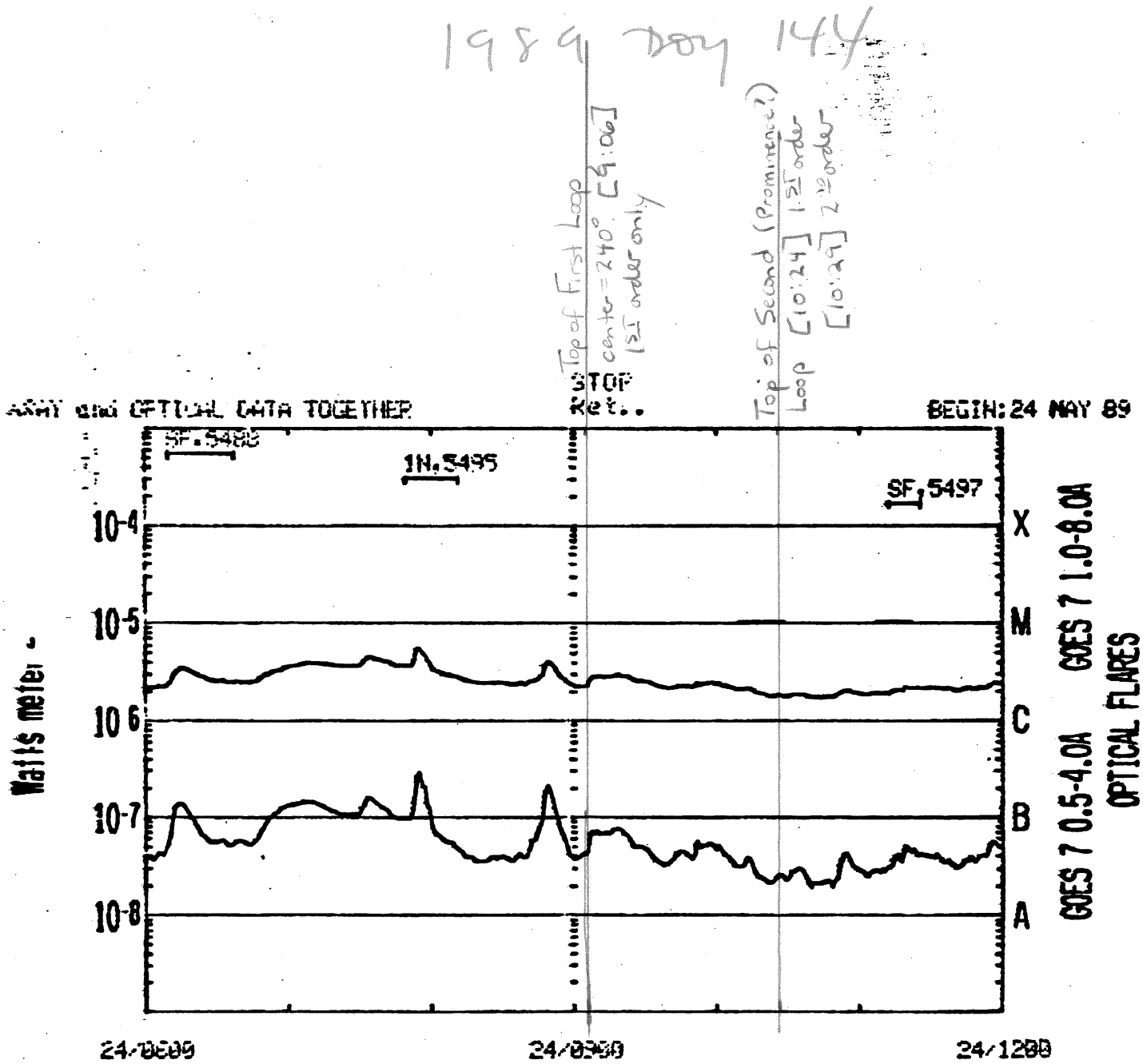
height = h + velocity*time # data points = 2



tstart=DOY144 9: 6 +/- 0.0 [min.]

radial velocity= 407. +/- 0. [km/sec]

1989 DOY 144



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

RUN: 1901UT 26 MAY 89

```
**********************
 This is a 1 order run
**********************

*******
 INPUT:
*******

                                error in        error in
year doy    time      radii   radius      angle   angle     datatype
1989 144   9:52:38   2.70 +/- 0.10    240.0 +/-  0.5        SMM
1989 144  10:43:55   4.50 +/- 0.25    240.0 +/-  1.0        SMM

****************************************
 Structure being measured:
Top of First Loop
****************************************

********
 OUTPUT:
********

START TIME:

 Event began at t = 0 + -0.458E+02 +/-  0.000E+00 [minutes]
 In more convenient units:
 Event began at DOY 144  9: 6 +/-  0.000E+00 [minutes]

 Origin defined at DOY144  9:50

RADIAL INFORMATION:

RADIAL VELOCITY =   407. +/-     0. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =    0.261E+01 +/-    0.192E-06 [solar radii]
 c(2) =    0.351E-01 +/-    0.953E-08 [radii/min]
 c(2) =    0.407E+03 +/-    0.111E-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) = 240. +/-   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 9:52 = 0. km/sec
The TOTAL velocity at 9:52 = 407. km/sec

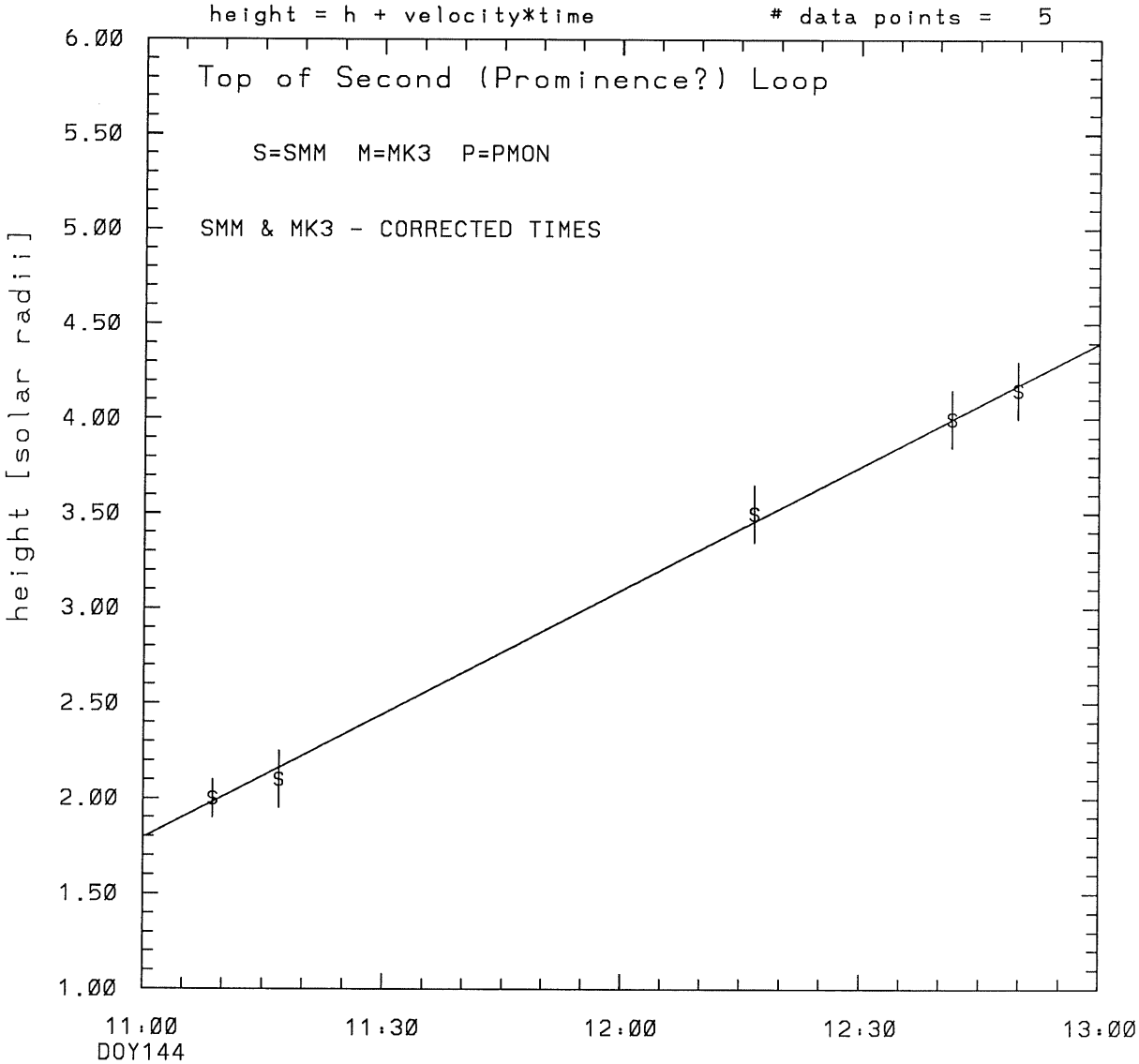
The TANGENTIAL velocity at 10:43 = 0. km/sec
The TOTAL velocity at 10:43 = 407. km/sec

****
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 DOY144 243 +/- Ø degrees

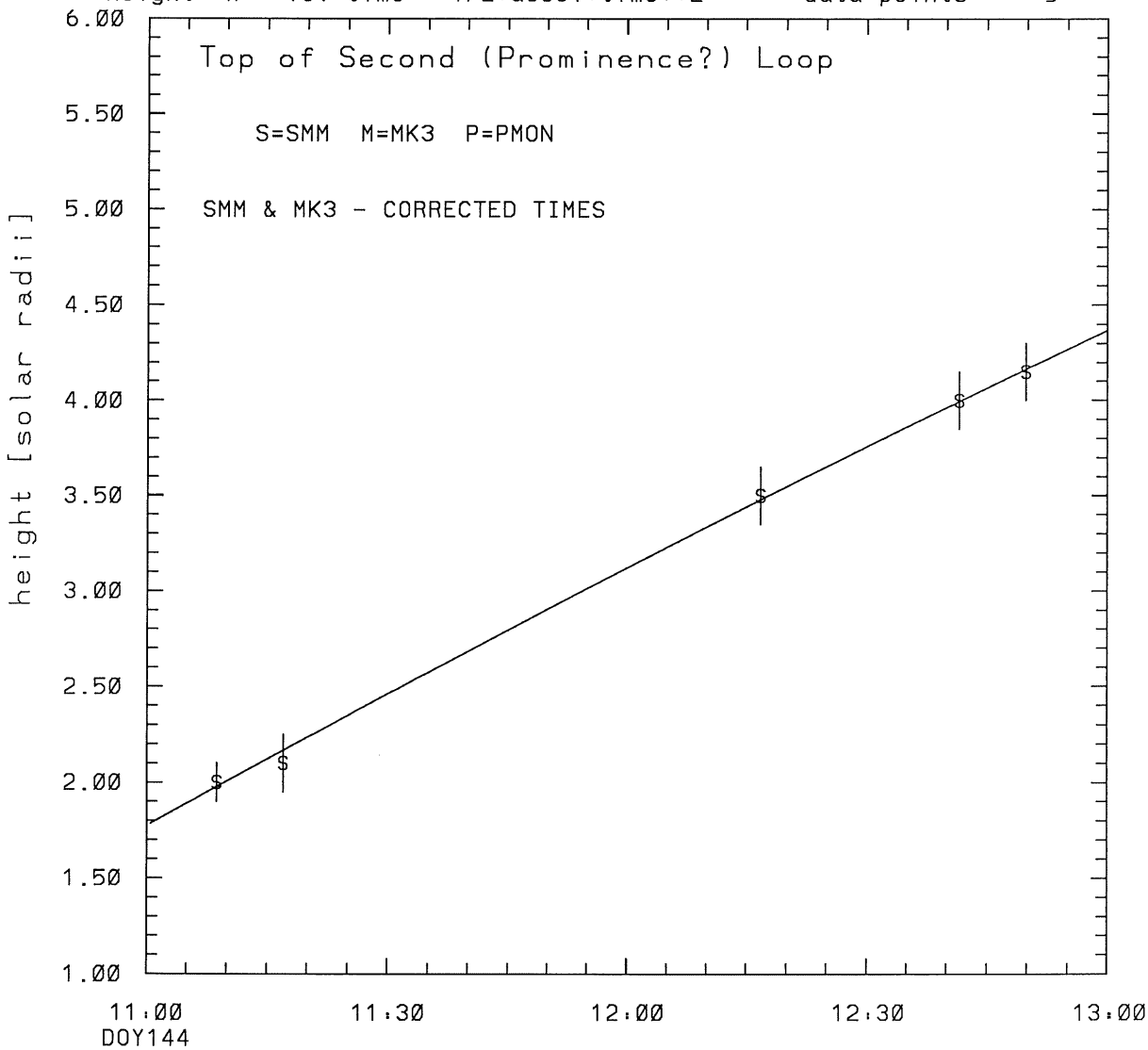


tstart=DOY144 1Ø:24 +/- Ø.3 [min.]

radial velocity= 252. +/- 4. [km/sec]

SMM C/P 1989 DOY144 243 +/- Ø degrees

height= h + vel*time + 1/2*accel*time**2 # data points = 5

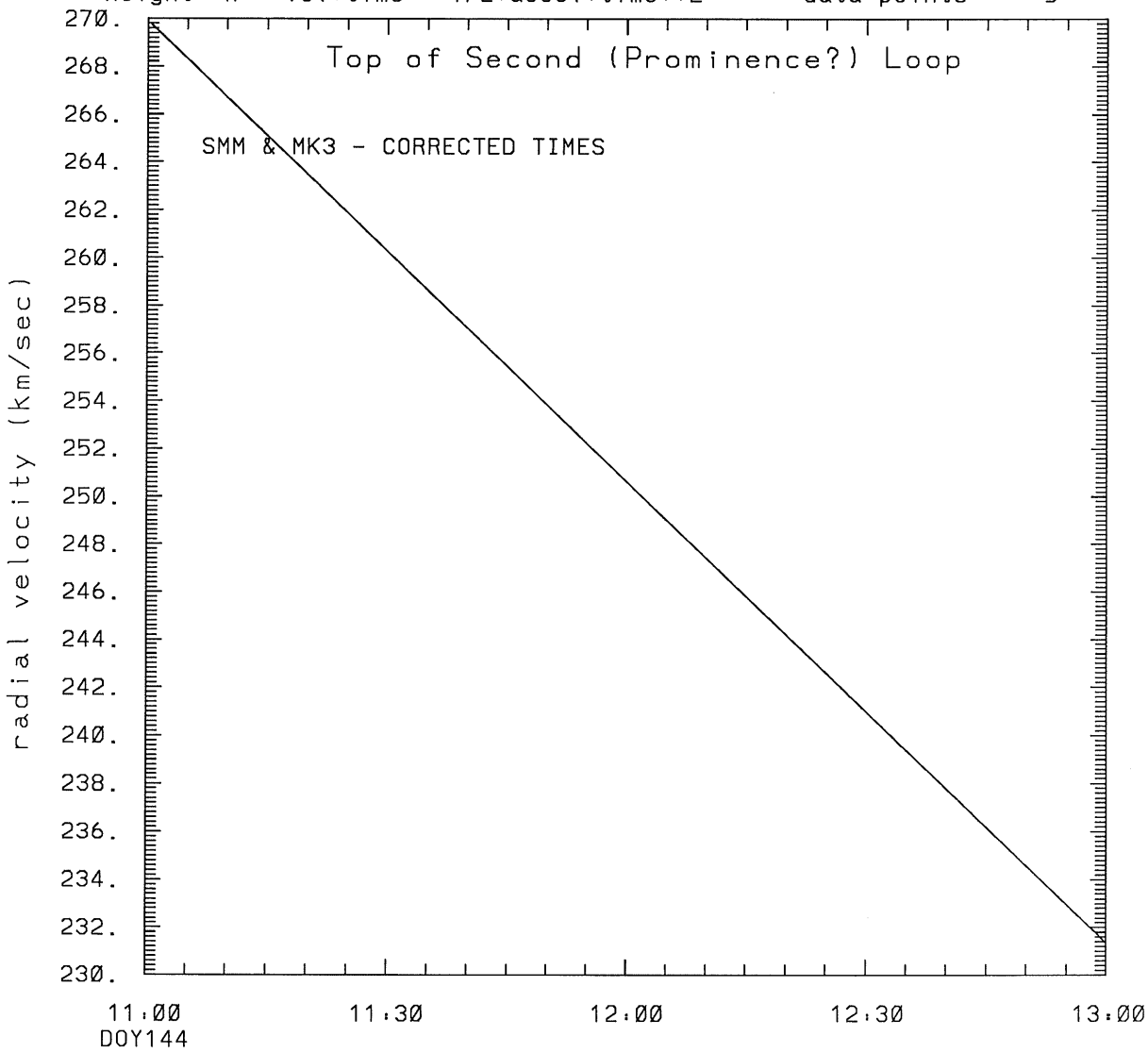


tstart=DOY144 10:29 +/- 17.4 [min.]

radial acceleration=-0.0054 +/- 0.0094 [km/sec**2]

SMM C/P 1989 DOY144 243 +/- Ø degrees

height= h + vel*time + 1/2*accel*time**2 # data points = 5



tstart=DOY144 1Ø:29 +/- 17.4 [min.]

radial acceleration=-.535E-Ø2 km/sec**2

****
This is a 1 order run
****

****
INPUT:
****

year doy	time	radii	error in radius	angle	error in angle	datatype
1989 144	11: 8:43	2.00	+/- 0.10	243.0	+/- 0.5	SMM
1989 144	11:17: 1	2.10	+/- 0.15	243.0	+/- 0.5	SMM
1989 144	12:16:46	3.50	+/- 0.15	243.0	+/- 1.0	SMM
1989 144	12:41:34	4.00	+/- 0.15	243.0	+/- 1.0	SMM
1989 144	12:49:51	4.15	+/- 0.15	243.0	+/- 1.0	SMM

****
Structure being measured:
Top of Second (Prominence?) Loop
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.365E+02 +/- 0.300E+00 [minutes]
In more convenient units:
Event began at DOY 144 10:24 +/- 0.300E+00 [minutes]

Origin defined at DOY144 11: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 252. +/- 4. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.179E+01 +/- 0.261E-01 [solar radii]
c(2) = 0.217E-01 +/- 0.384E-03 [radii/min]
c(2) = 0.252E+03 +/- 0.446E+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)= 0.37462E-01 [radii] see Bevington pg. 114
error in c(2)= 0.49497E-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) = 243. +/- 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 11: 8 = 0. km/sec
The TOTAL velocity at 11: 8 = 252. km/sec

The TANGENTIAL velocity at 11:17 = 0. km/sec
The TOTAL velocity at 11:17 = 252. km/sec

The TANGENTIAL velocity at 12:16 = 0. km/sec
The TOTAL velocity at 12:16 = 252. km/sec

The TANGENTIAL velocity at 12:41 = 0. km/sec
The TOTAL velocity at 12:41 = 252. km/sec

The TANGENTIAL velocity at 12:49 = 0. km/sec
The TOTAL velocity at 12:49 = 252. km/sec

****
The following info is for estimating goodness of the fit
****

Fit is ok [ier=1]

Standard Deviation in the height = 1.03
Standard Deviation in start time measurement = 0.423E+02
Error in time = 0.37331E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.140E-02
Reduced Chi Squared = 0.554E-02
Chi Squared = 0.166E-01
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.999E+00
The probability that no LINEAR correlation exists between the variables = 0.2392E-04
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

****
This is a 2 order run
****

****
INPUT:
****

year doy	time	radii	error in radius	angle	error in angle	datatype
1989 144	11: 8:43	2.00	+/- 0.10	243.0	+/- 0.5	SMM
1989 144	11:17: 1	2.10	+/- 0.15	243.0	+/- 0.5	SMM
1989 144	12:16:46	3.50	+/- 0.15	243.0	+/- 1.0	SMM
1989 144	12:41:34	4.00	+/- 0.15	243.0	+/- 1.0	SMM
1989 144	12:49:51	4.15	+/- 0.15	243.0	+/- 1.0	SMM

****
Structure being measured:
Top of Second (Prominence?) Loop
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.326E+02 +/- 0.174E+02 [minutes]
In more convenient units:
Event began at DOY 144 10:29 +/- 0.174E+02 [minutes]

Origin defined at DOY144 11: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.535E-02 +/- 0.939E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.177E+01 +/- 0.421E-01 [solar radii]
c(2) = 0.233E-01 +/- 0.277E-02 [radii/min]
c(2) = 0.270E+03 +/- 0.322E+02 [km/sec]
c(3) = -0.138E-04 +/- 0.243E-04 [radii/min**2]
c(3) = -0.535E-02 +/- 0.939E-02 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.61605E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.20803E-01 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.34171E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.88893E-03 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.29146E-04 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.73528E-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) = 243. +/- 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 11: 8 = 0. km/sec
The TOTAL velocity at 11: 8 = 267. km/sec

The TANGENTIAL velocity at 11:17 = 0. km/sec
The TOTAL velocity at 11:17 = 264. km/sec

The TANGENTIAL velocity at 12:16 = 0. km/sec
The TOTAL velocity at 12:16 = 245. km/sec

The TANGENTIAL velocity at 12:41 = 0. km/sec
The TOTAL velocity at 12:41 = 237. km/sec

The TANGENTIAL velocity at 12:49 = 0. km/sec
The TOTAL velocity at 12:49 = 235. km/sec

****
The following info is for estimating goodness of the fit
****

Fit is ok [ier=1]

Standard Deviation in the height = 1.03
Standard Deviation in start time measurement = 0.423E+02
Value of reduced Chi Squared returned from nllst2 = 0.169E-02
Reduced Chi Squared = 0.584E-02
Chi Squared = 0.117E-01
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 = 0.1061E+01
The correlation between the data and the time**2 term = 0.1016E+01
0The correlation between the data and the complete equation of motion = 0.1000E+01
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]