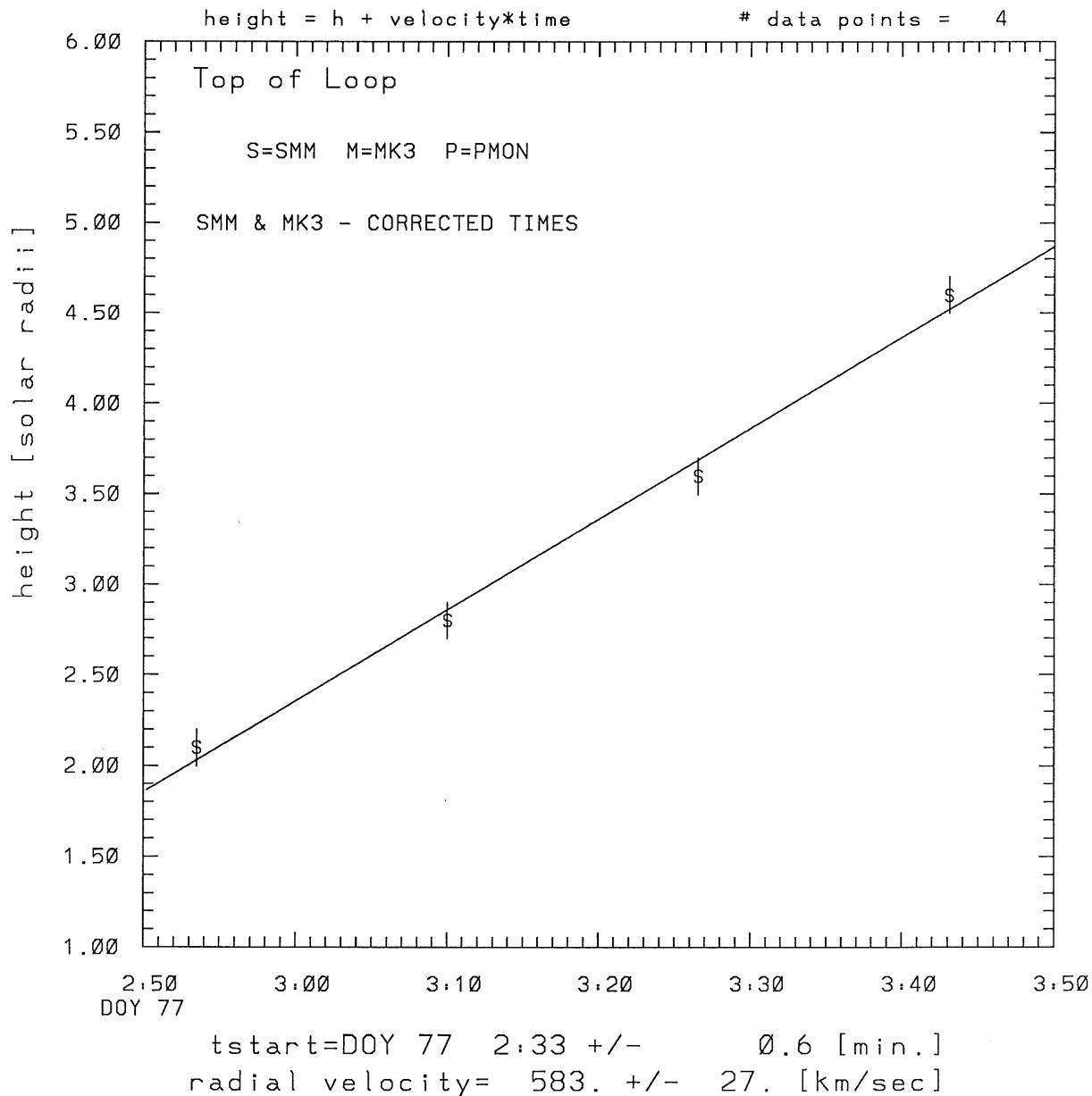
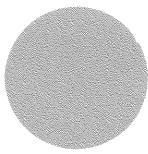
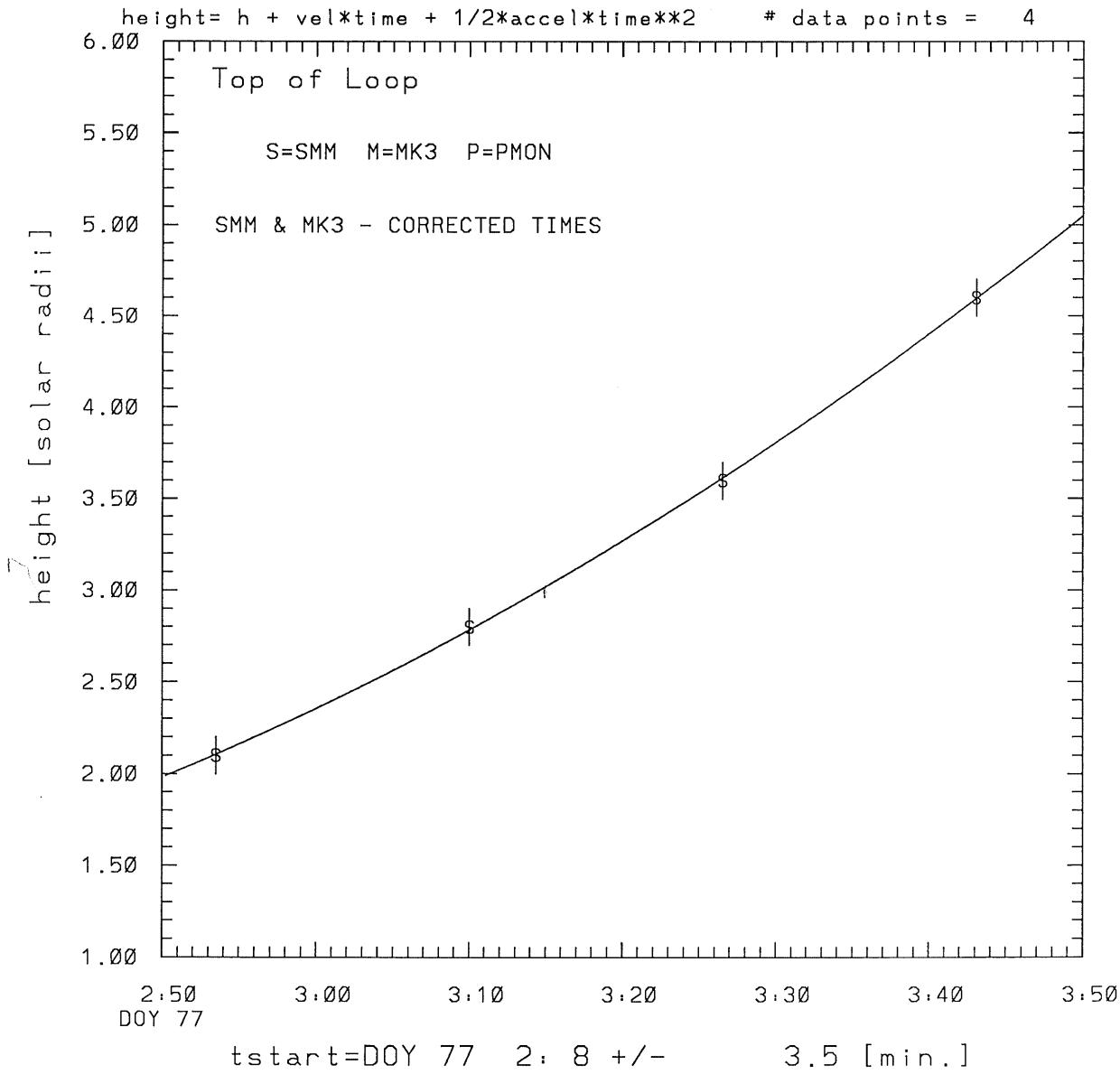


SMM C/P 1989 DOY 77 247 +/- 0 degrees



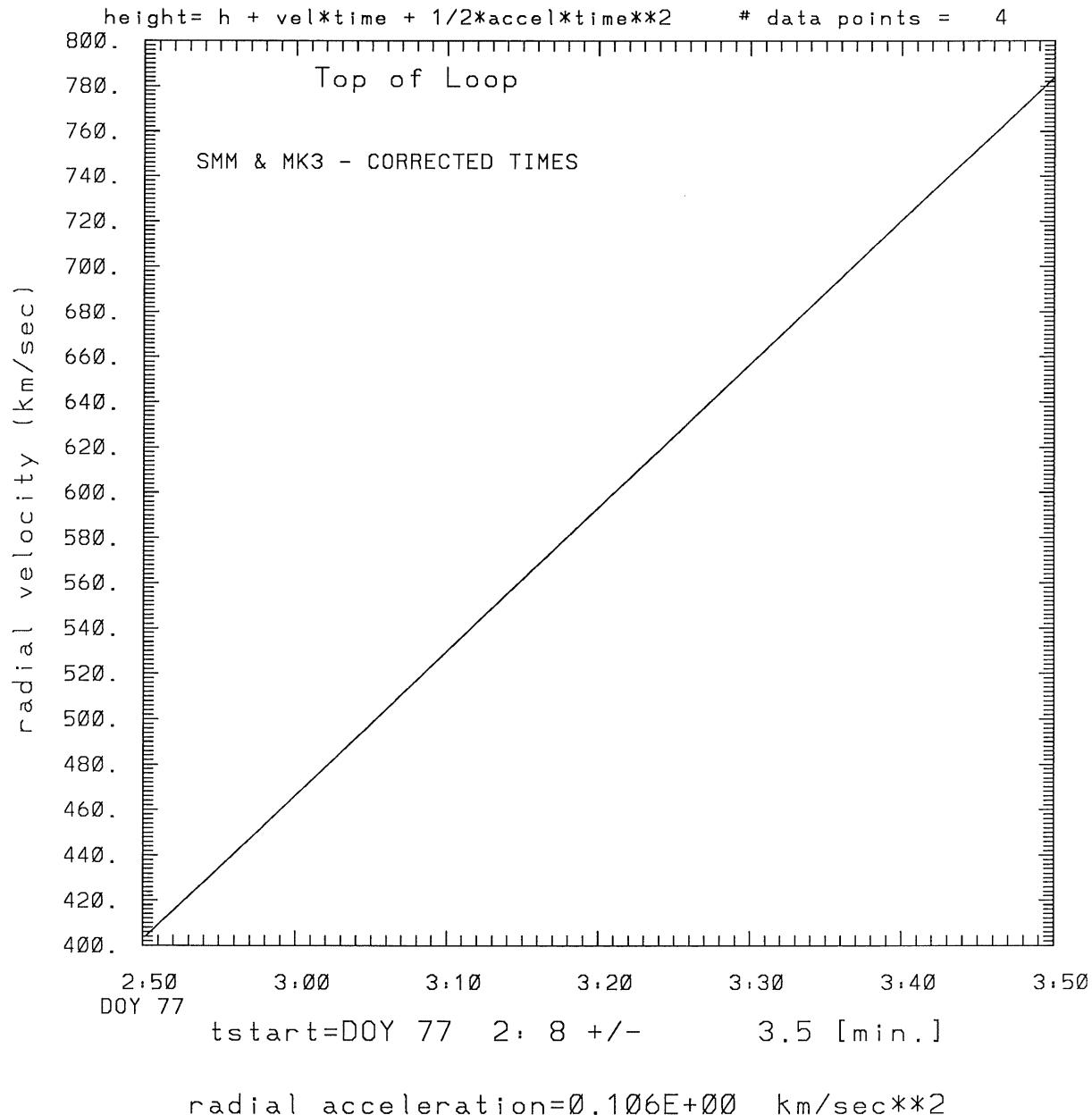


SMM C/P 1989 DOY 77 247 +/- 0 degrees



radial acceleration= 0.1059 +/- 0.0113 [km/sec\*\*2]

SMM C/P 1989 DOY 77 247 +/- 0 degrees



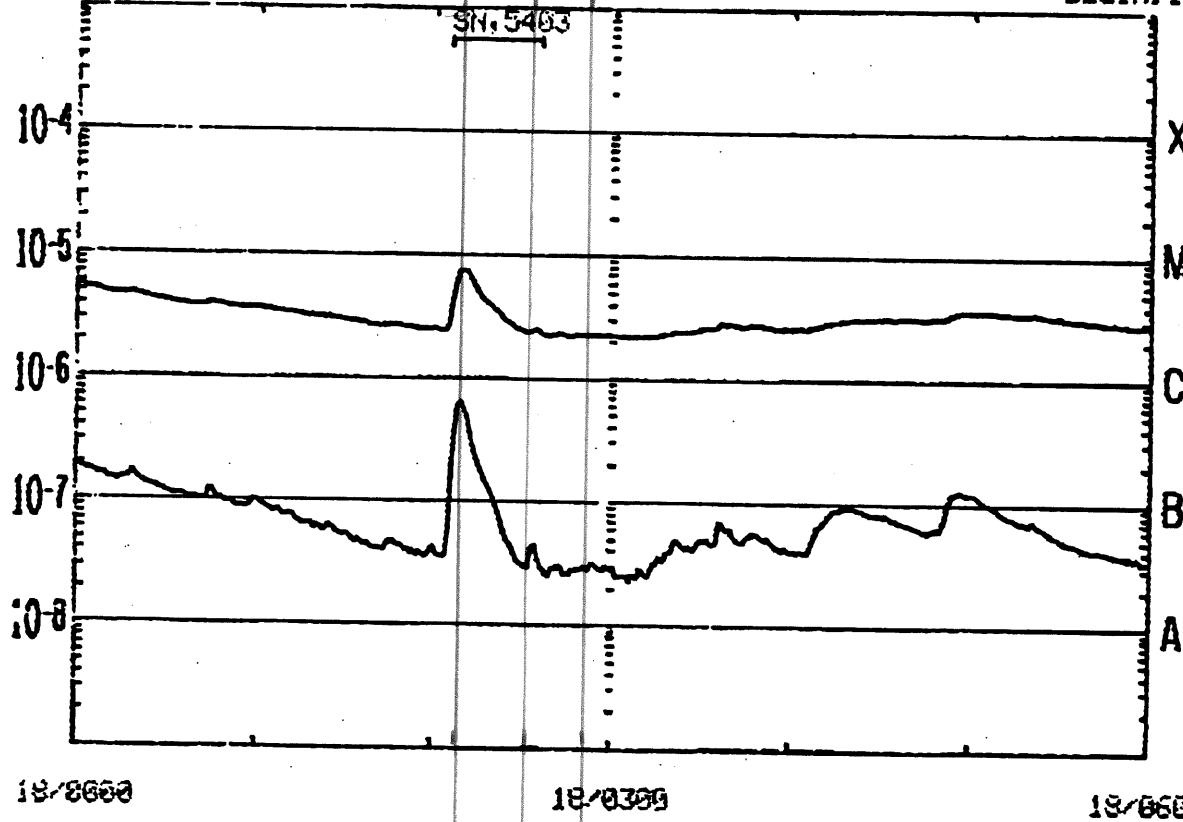
1989 Day 077

X-RAY AND OPTICAL DATA TOGETHER

STOP  
Ret..

BEGIN: 18 MAR 89

Watts meter<sup>-2</sup>



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

RUN: 1947UT  
19 MAR 89

Top of Loop, 2<sup>nd</sup> order  
[2:08]  
Top of Loop center = 230°  
[2:33] 1<sup>st</sup> order

Top of Prominence  
center = 230°  
[2:49], 1<sup>st</sup> order  
only

\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	radii	radius	error in radii	error in radius	angle	angle	datatype
1989	77	2:53:30	2.10	+/- 0.10	247.0	+/- 0.5			SMM
1989	77	3:10: 1	2.80	+/- 0.10	247.0	+/- 0.5			SMM
1989	77	3:26:33	3.60	+/- 0.10	247.0	+/- 0.5			SMM
1989	77	3:43: 5	4.60	+/- 0.10	247.0	+/- 0.5			SMM

\*\*\*\*\*

Structure being measured:

Top of Loop

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OUTPUT:

\*\*\*\*\*

START TIME:

Event began at t = 0 + -0.170E+02 +/- 0.633E+00 [minutes]

In more convenient units:

Event began at DOY 77 2:33 +/- 0.633E+00 [minutes]

Origin defined at DOY 77 2:50

RADIAL INFORMATION:

RADIAL VELOCITY = 583. +/- 27. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.185E+01 +/- 0.798E-01 [solar radii]  
c(2) = 0.502E-01 +/- 0.236E-02 [radii/min]  
c(2) = 0.583E+03 +/- 0.274E+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)= 0.97791E-01 [radii] see Bevington pg. 114

error in c(2)= 0.28942E-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) = 247. +/- 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 2:53 = 0. km/sec

The TOTAL velocity at 2:53 = 583. km/sec

The TANGENTIAL velocity at 3:10 = 0. km/sec

The TOTAL velocity at 3:10 = 583. km/sec

The TANGENTIAL velocity at 3:26 = 0. km/sec

The TOTAL velocity at 3:26 = 583. km/sec

The TANGENTIAL velocity at 3:43 = 0. km/sec

The TOTAL velocity at 3:43 = 583. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 1.08

Standard Deviation in start time measurement = 0.185E+02

Error in time = 0.30123E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.763E-02

Reduced Chi Squared = 0.309E-01

Chi Squared = 0.617E-01

The probability for exceeding chi square = 0.992E+00

The correlation coefficient = 0.997E+00

The probability that no LINEAR correlation exists between the variables = 0.3305E-02

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

\*\*\*\*\*

This is a 2 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	radii	radius	error in radii	angle	error in angle	datatype
1989	77	2:53:30	2.10	+/- 0.10	247.0	+/- 0.5	SMM	
1989	77	3:10: 1	2.80	+/- 0.10	247.0	+/- 0.5	SMM	
1989	77	3:26:33	3.60	+/- 0.10	247.0	+/- 0.5	SMM	
1989	77	3:43: 5	4.60	+/- 0.10	247.0	+/- 0.5	SMM	

\*\*\*\*\*

Structure being measured:

Top of Loop

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OUTPUT:

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START TIME:

Event began at t = 0 + -0.424E+02 +/- 0.350E+01 [minutes]

In more convenient units:

Event began at DOY 77 2: 8 +/- 0.350E+01 [minutes]

Origin defined at DOY 77 2:50

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.106E+00 +/- 0.113E-01 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.198E+01 +/- 0.198E-01 [solar radii]

c(2) = 0.347E-01 +/- 0.170E-02 [radii/min]

c(2) = 0.403E+03 +/- 0.198E+02 [km/sec]

c(3) = 0.274E-03 +/- 0.291E-04 [radii/min\*\*2]

c(3) = 0.106E+00 +/- 0.113E-01 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.27934E-01 [radii] Bevington pg 154 (8-30)

Exact error in c(1) = 0.72287E-02 [radii] Bevington pg 154 (8-28)

Approximate error in c(2) = 0.24085E-02 [radii/min] Bevington pg 154 (8-30)

Exact error in c(2) = 0.11739E-02 [radii/min] Bevington pg 154 (8-28)

Approximate error in c(3) = 0.41182E-04 [radii/min\*\*] Bevington pg 154 (8-30)

Exact error in c(3) = 0.20591E-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) = 247. +/- 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 2:53 = 0. km/sec

The TOTAL velocity at 2:53 = 425. km/sec

The TANGENTIAL velocity at 3:10 = 0. km/sec

The TOTAL velocity at 3:10 = 530. km/sec

The TANGENTIAL velocity at 3:26 = 0. km/sec

The TOTAL velocity at 3:26 = 635. km/sec

The TANGENTIAL velocity at 3:43 = 0. km/sec

The TOTAL velocity at 3:43 = 740. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 1.08

Standard Deviation in start time measurement = 0.185E+02

Value of reduced Chi Squared returned from nllst2 = 0.253E-03

Reduced Chi Squared = 0.127E-02

Chi Squared = 0.127E-02

The probability for exceeding chi square = 0.987E+00

For a second order fit 3 correlation coefficients are given:

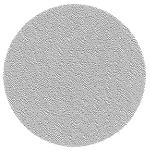
(Using equation of motion:  $r = a + bt + at^{**2}$ )

The correlation between the data and the term linear in time = 0.9967E+00

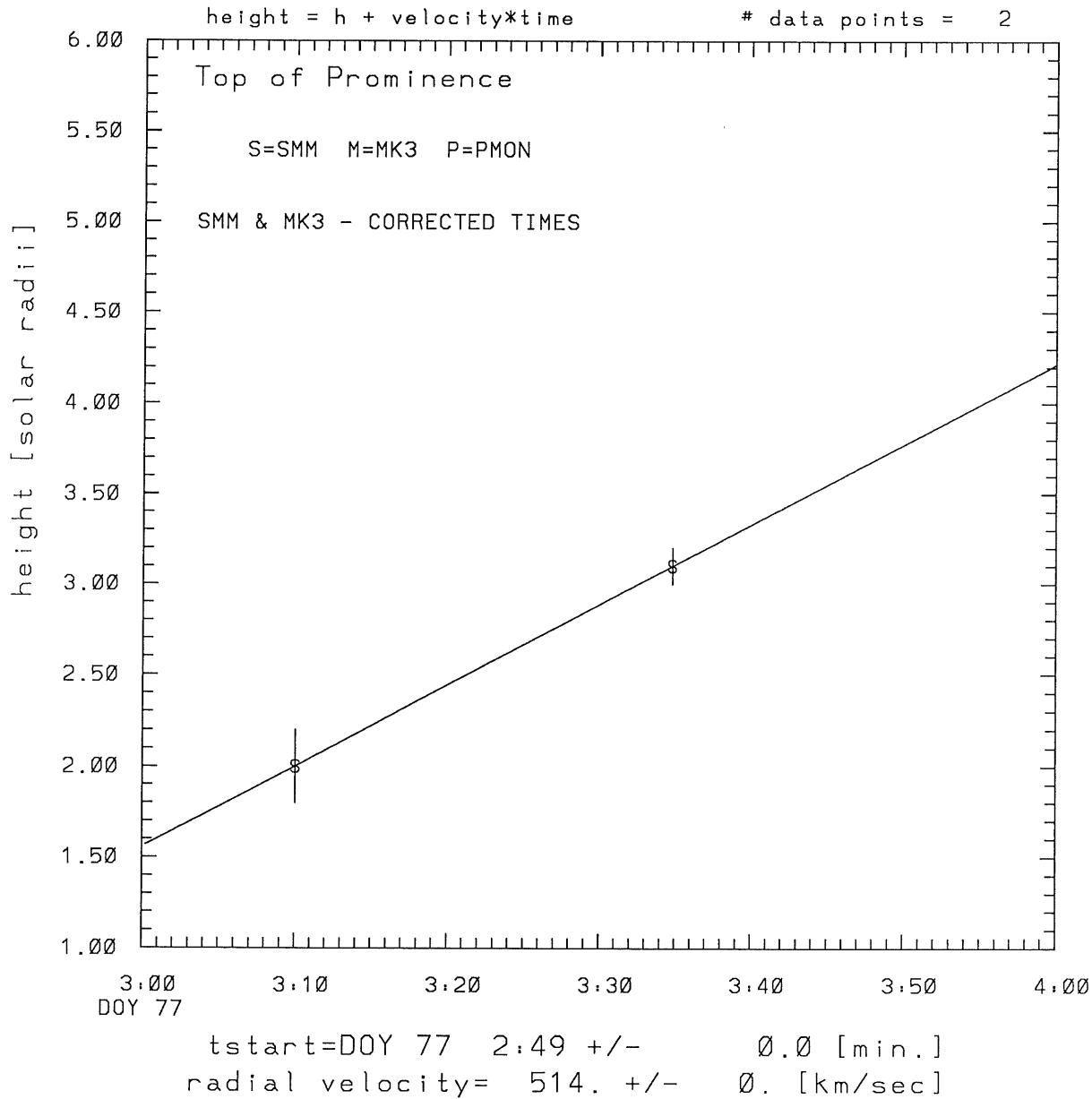
The correlation between the data and the  $t^{**2}$  term = 0.9846E+00

The correlation between the data and the complete equation of motion = 0.9999E+00

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



SMM C/P 1989 DOY 77 229 +/- 0 degrees



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This is a 1 order run

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INPUT:

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year	doy	time	radii	radius	error in	angle	error in	datatype
1989	77	3:10: 1	2.00	+/- 0.20	229.0	+/- 0.5	SMM	
1989	77	3:34:50	3.10	+/- 0.10	229.0	+/- 0.5	SMM	

\*\*\*\*\*

Structure being measured:

Top of Prominence

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OUTPUT:

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START TIME:

Event began at t = 0 + -0.125E+02 +/- 0.000E+00 [minutes]

In more convenient units:

Event began at DOY 77 2:49 +/- 0.000E+00 [minutes]

Origin defined at DOY 77 3: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 514. +/- 0. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.156E+01 +/- 0.000E+00 [solar radii]  
c(2) = 0.443E-01 +/- 0.000E+00 [radii/min]  
c(2) = 0.514E+03 +/- 0.000E+00 [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) = 229. +/- 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 3:10 = 0. km/sec

The TOTAL velocity at 3:10 = 514. km/sec

The TANGENTIAL velocity at 3:34 = 0. km/sec

The TOTAL velocity at 3:34 = 514. km/sec

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The following info is for estimating goodness of the fit

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

Correlation coefficient is not computable!