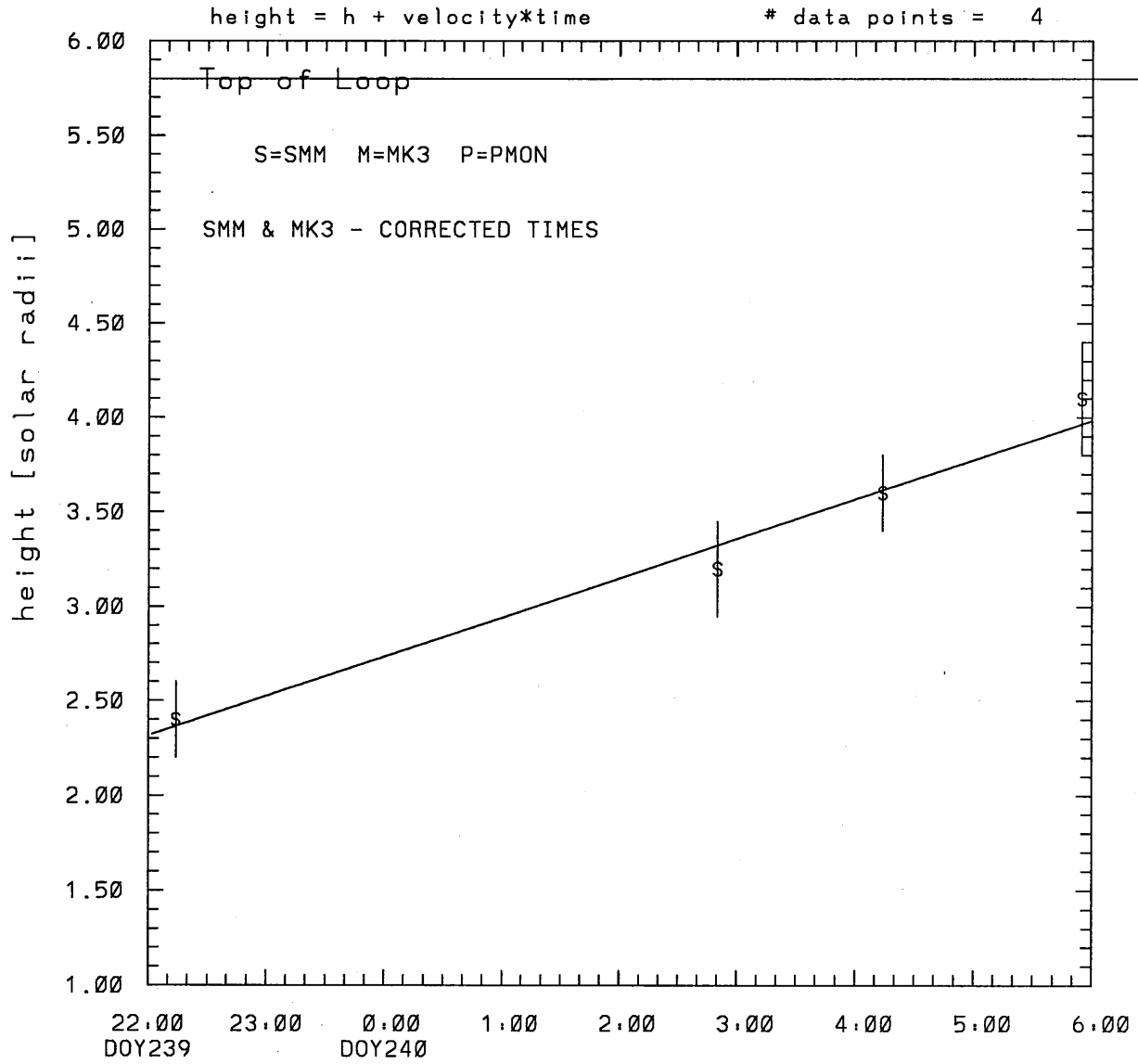
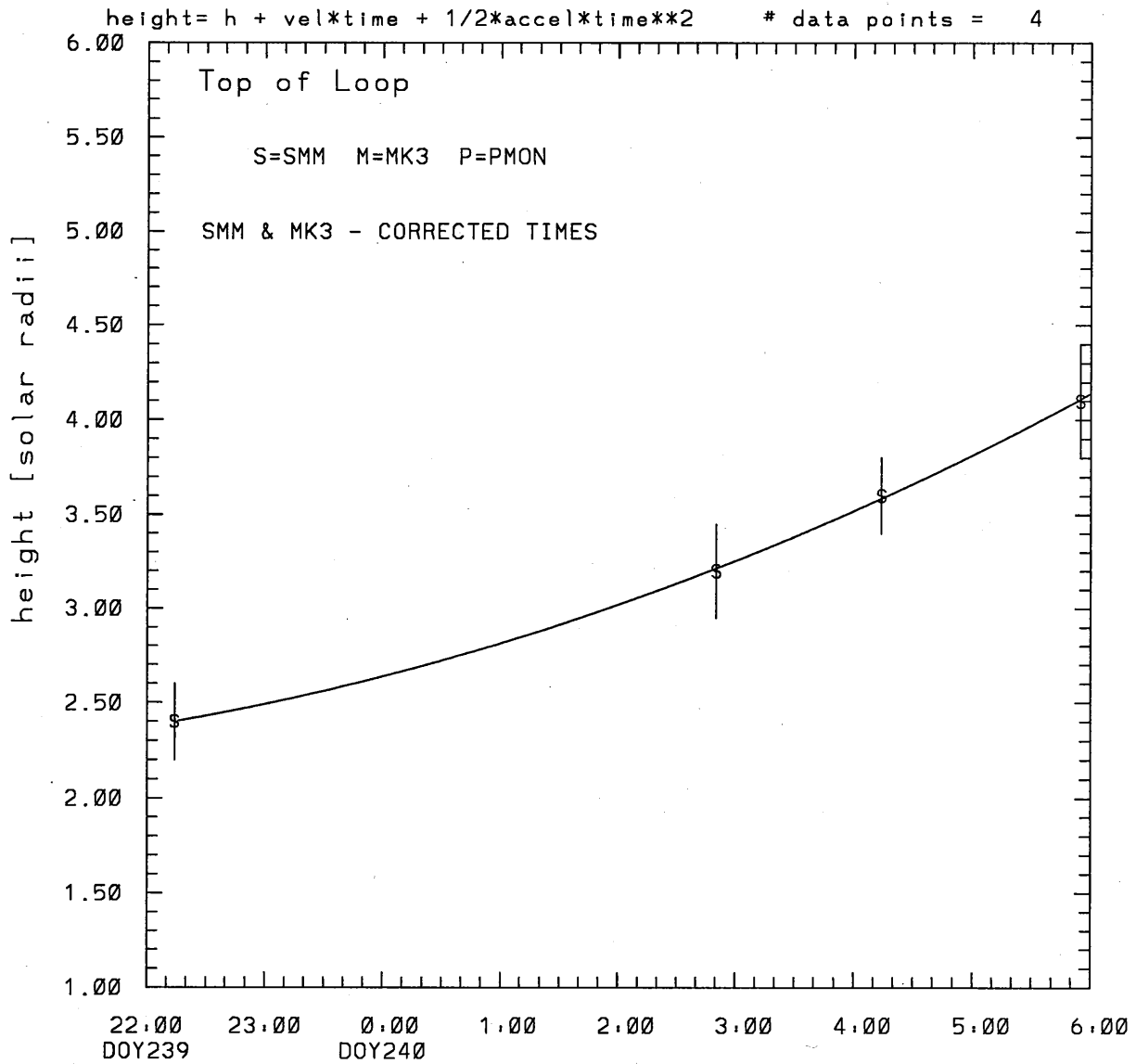


SMM C/P 1989 DOY239 110 +/- 0 degrees



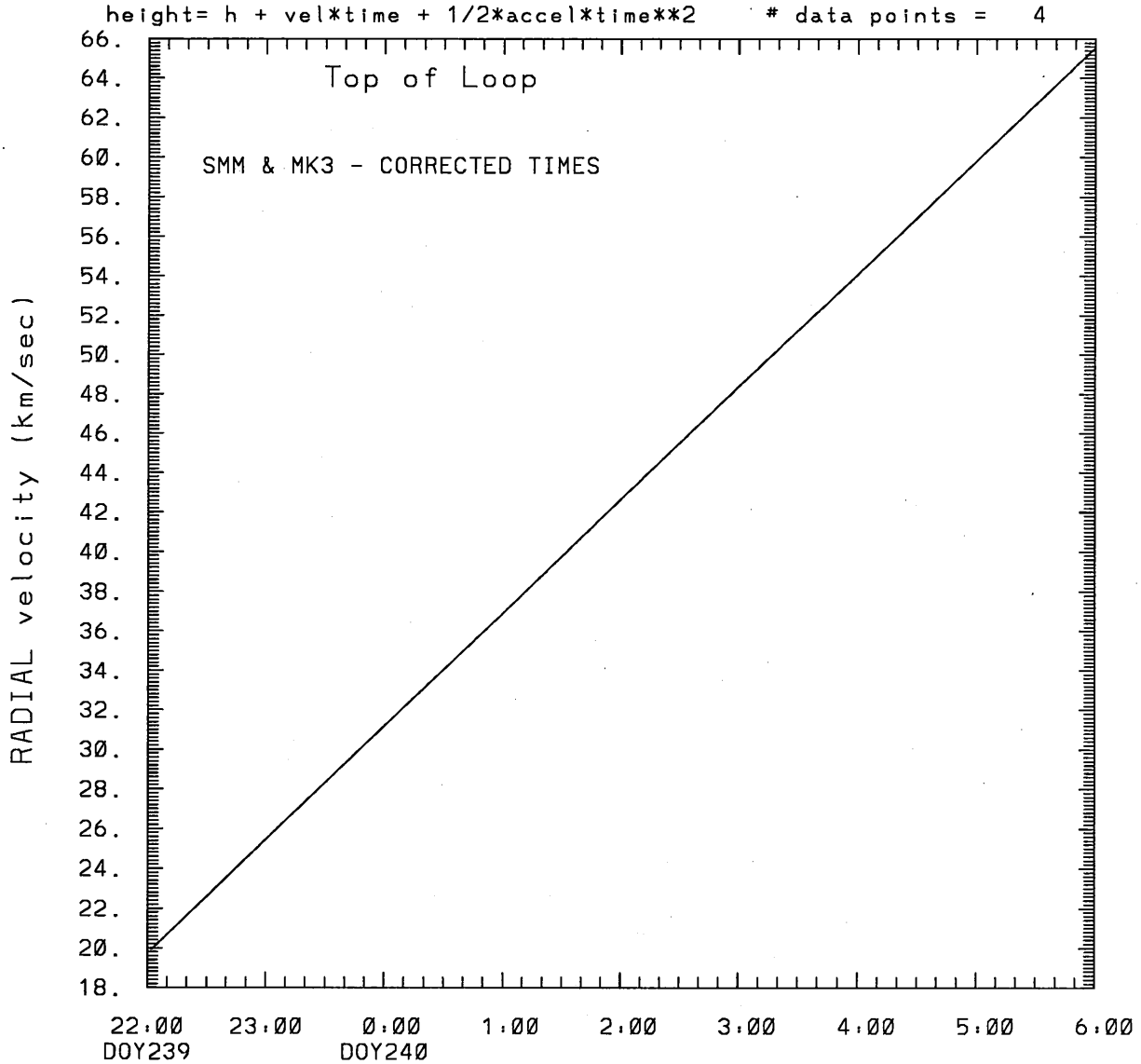
tstart=DOY239 15:41 +/- 9.2 [min.]  
radial velocity= 40. +/- 3. [km/sec]

SMM C/P 1989 DOY239 110 +/- 0 degrees



tstart=DOY239 18:34 from derivative=0  
Event begins at 2.20 Solar Radii  
radial acceleration = 0.0016 +/- 0.0002 [km/sec\*\*2]

SMM C/P 1989 DOY239 110 +/- 0 degrees

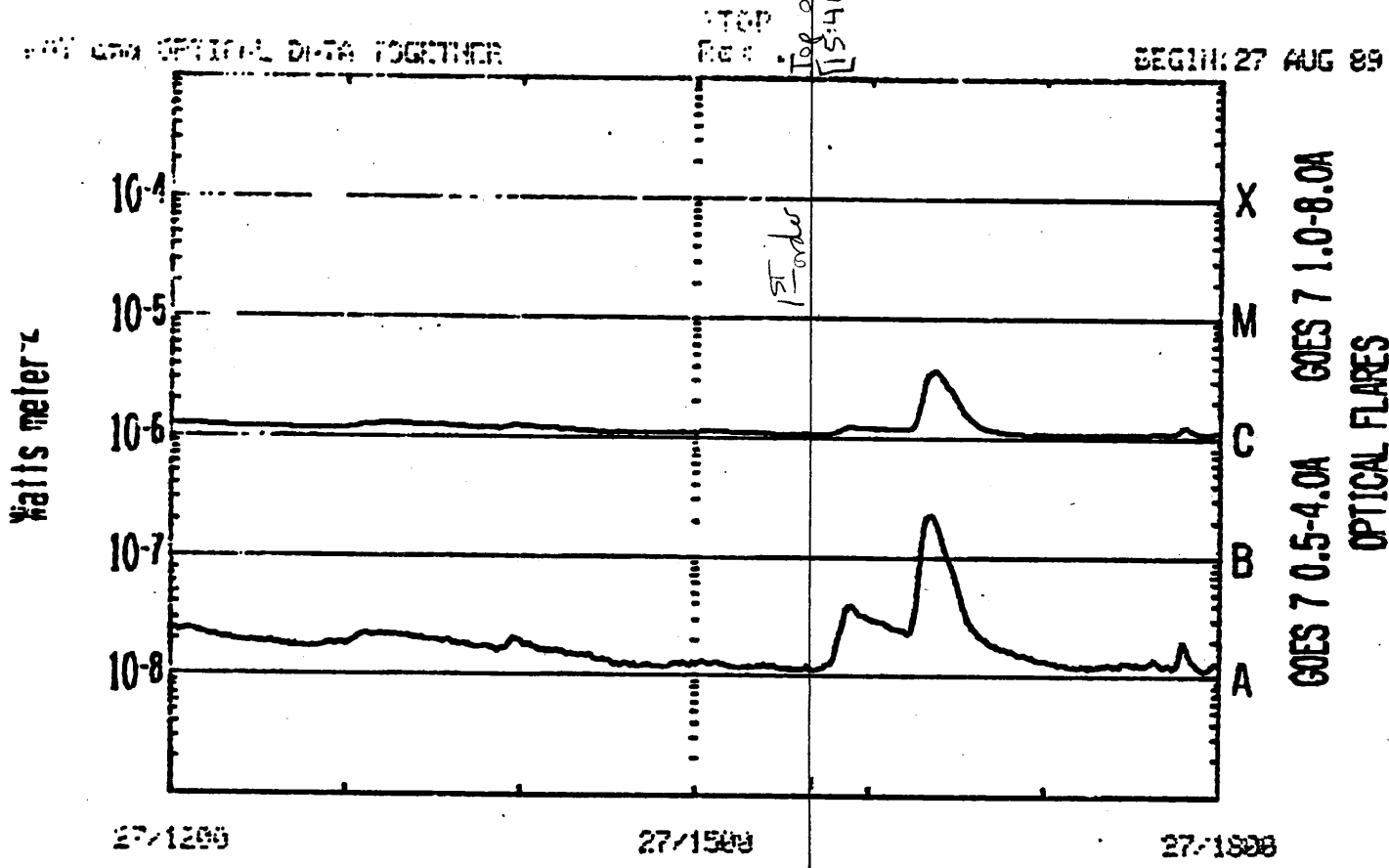


tstart=DOY239 18:34 from derivative=0

Event begins at 2.20 Solar Radii

radial acceleration=0.159E-02 km/sec\*\*2

1989 DOY 239



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

SAA's  
NIGHT  
B/N: 1539UT  
28 AUG 89

See next page  
for 2<sup>nd</sup> order fit.

1989 DOY 239

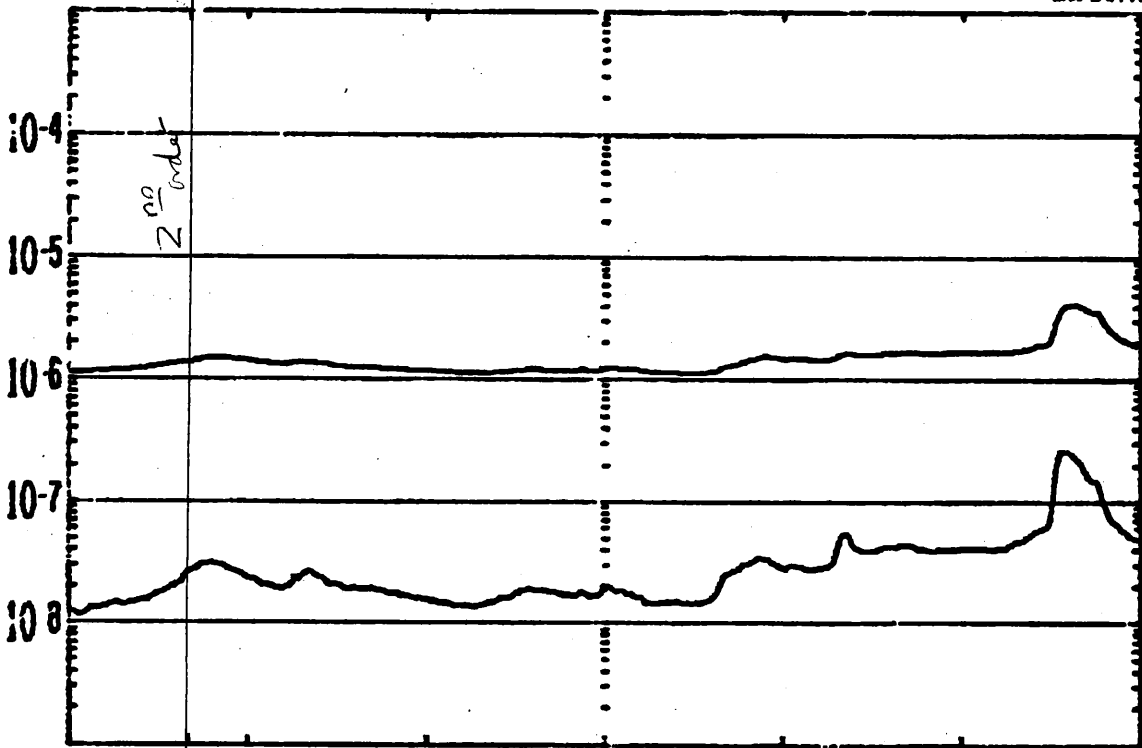
Top of Loop center = 113°  
[18:42] 2<sup>nd</sup> order

DATA TOGETHER

STOP

BEGIN: 27 AUG 89

Watts meter<sup>2</sup>



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

27/1989

27/2100

28/0000

SAA's  
NIGHT

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

RNH: 1543UT  
28 AUG 89

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

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	239	22:13:59	2.40 +/- 0.20	110.0 +/- 0.5		SMM	
1989	240	2:50:16	3.20 +/- 0.25	110.0 +/- 1.0		SMM	
1989	240	4:14: 6	3.60 +/- 0.20	110.0 +/- 1.0		SMM	
1989	240	5:54:59	4.10 +/- 0.30	110.0 +/- 1.0		SMM	

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

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

Event began at t = 0 + -0.379E+03 +/- 0.919E+01 [minutes]  
In more convenient units:  
Event began at DOY 239 15:41 +/- 0.919E+01 [minutes]

Origin defined at DOY239 22: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 40. +/- 3. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.232E+01 +/- 0.807E-01 [solar radii]  
c(2) = 0.347E-02 +/- 0.261E-03 [radii/min]  
c(2) = 0.403E+02 +/- 0.303E+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)= 0.12936E+00 [radii] see Bevington pg. 114  
error in c(2)= 0.38566E-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) = 110. +/- 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, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 22:13 = 0. km/sec  
The RADIAL velocity at 22:13 = 40. km/sec

The TOTAL velocity at 22:13 = 40. km/sec

The TANGENTIAL velocity at 2:50 = 0. km /sec

The RADIAL velocity at 2:50 = 40. km/sec

The TOTAL velocity at 2:50 = 40. km/sec

The TANGENTIAL velocity at 4:14 = 0. km /sec

The RADIAL velocity at 4:14 = 40. km/sec

The TOTAL velocity at 4:14 = 40. km/sec

The TANGENTIAL velocity at 5:54 = 0. km /sec

The RADIAL velocity at 5:54 = 40. km/sec

The TOTAL velocity at 5:54 = 40. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.72

Standard Deviation in start time measurement = 0.171E+03

Error in time = 0.53827E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.837E-02

Reduced Chi Squared = 0.525E-01

Chi Squared = 0.105E+00

The probability for exceeding chi square = 0.992E+00

The correlation coefficient = 0.989E+00

The probability that no LINEAR correlation exists between the variables = 0.10751

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	239	22:13:59	2.40 +/-	0.20	110.0 +/-	0.5	SMM
1989	240	2:50:16	3.20 +/-	0.25	110.0 +/-	1.0	SMM
1989	240	4:14: 6	3.60 +/-	0.20	110.0 +/-	1.0	SMM
1989	240	5:54:59	4.10 +/-	0.30	110.0 +/-	1.0	SMM

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

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

tstart=DOY239 18:34 from derivative = 0  
Event begins at 2.20 Solar Radii  
Origin defined at DOY239 22: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.159E-02 +/- 0.157E-03 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.237E+01 +/- 0.149E-01 [solar radii]  
c(2) = 0.170E-02 +/- 0.181E-03 [radii/min]  
c(2) = 0.197E+02 +/- 0.210E+01 [km/sec]  
c(3) = 0.411E-05 +/- 0.407E-06 [radii/min\*\*2]  
c(3) = 0.159E-02 +/- 0.157E-03 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.24617E-01 [radii] Bevington pg 154 (8-30)  
Exact error in c(1) = 0.19505E-02 [radii] Bevington pg 154 (8-28)  
Approximate error in c(2) = 0.24747E-03 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.12525E-03 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.51659E-06 [radii/min\*\*2] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.27985E-06 [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) = 110. +/- 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, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:  
The TANGENTIAL velocity at 22:13 = 0. km /sec



The RADIAL velocity at 22:13 = 21. km/sec

The TOTAL velocity at 22:13 = 21. km/sec

The TANGENTIAL velocity at 2:50 = 0. km /sec

The RADIAL velocity at 2:50 = 47. km/sec

The TOTAL velocity at 2:50 = 47. km/sec

The TANGENTIAL velocity at 4:14 = 0. km /sec

The RADIAL velocity at 4:14 = 55. km/sec

The TOTAL velocity at 4:14 = 55. km/sec

The TANGENTIAL velocity at 5:54 = 0. km /sec

The RADIAL velocity at 5:54 = 65. km/sec

The TOTAL velocity at 5:54 = 65. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.72

Standard Deviation in start time measurement = 0.171E+03

Value of reduced Chi Squared returned from nllst2 = 0.241E-03

Reduced Chi Squared = 0.143E-02

Chi Squared = 0.143E-02

The probability for exceeding chi square = 0.988E+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 = 0.1032E+01

The correlation between the data and the time\*\*2 term = 0.9632E+00

The correlation between the data and the complete equation of motion=0.1001E+01

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