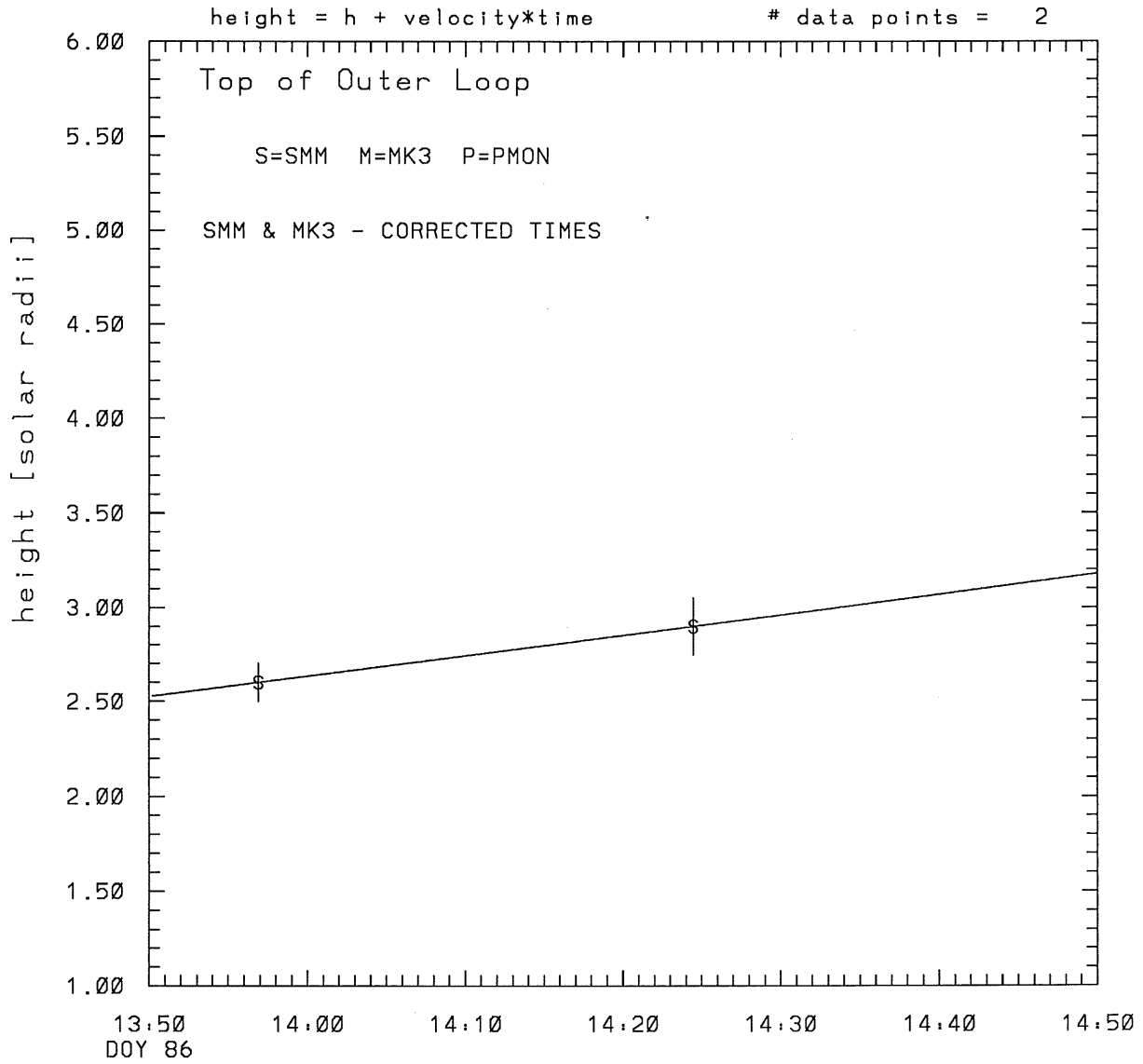


SMM C/P 1980 DOY 86 208 +/- 0 degrees



tstart=DOY 86 11:30 +/- 0.0 [min.]  
radial velocity= 126. +/- 0. [km/sec]

\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	error in radii	error in radius	error in angle	error in angle	datatype
1980	86	13:56:54	2.60 +/- 0.10	208.0 +/- 0.5			SMM
1980	86	14:24:28	2.90 +/- 0.15	208.0 +/- 0.5			SMM

\*\*\*\*\*

Structure being measured:

Top of Outer Loop

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.140E+03 +/- 0.000E+00$  [minutes]

In more convenient units:

Event began at DOY 86 11:30 +/- 0.000E+00 [minutes]

Origin defined at DOY 86 13:50

RADIAL INFORMATION:

RADIAL VELOCITY = 126. +/- 0. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.252E+01 +/- 0.142E-05 [solar radii]  
c(2) = 0.109E-01 +/- 0.714E-07 [radii/min]  
c(2) = 0.126E+03 +/- 0.828E-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) = 208. +/- 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 13:56 = 0.000E+00 km/sec

The TOTAL velocity at 13:56 = 126. km/sec

The TANGENTIAL velocity at 14:24 = 0.000E+00 km/sec

The TOTAL velocity at 14:24 = 126. km/sec

\*\*\*\*\*

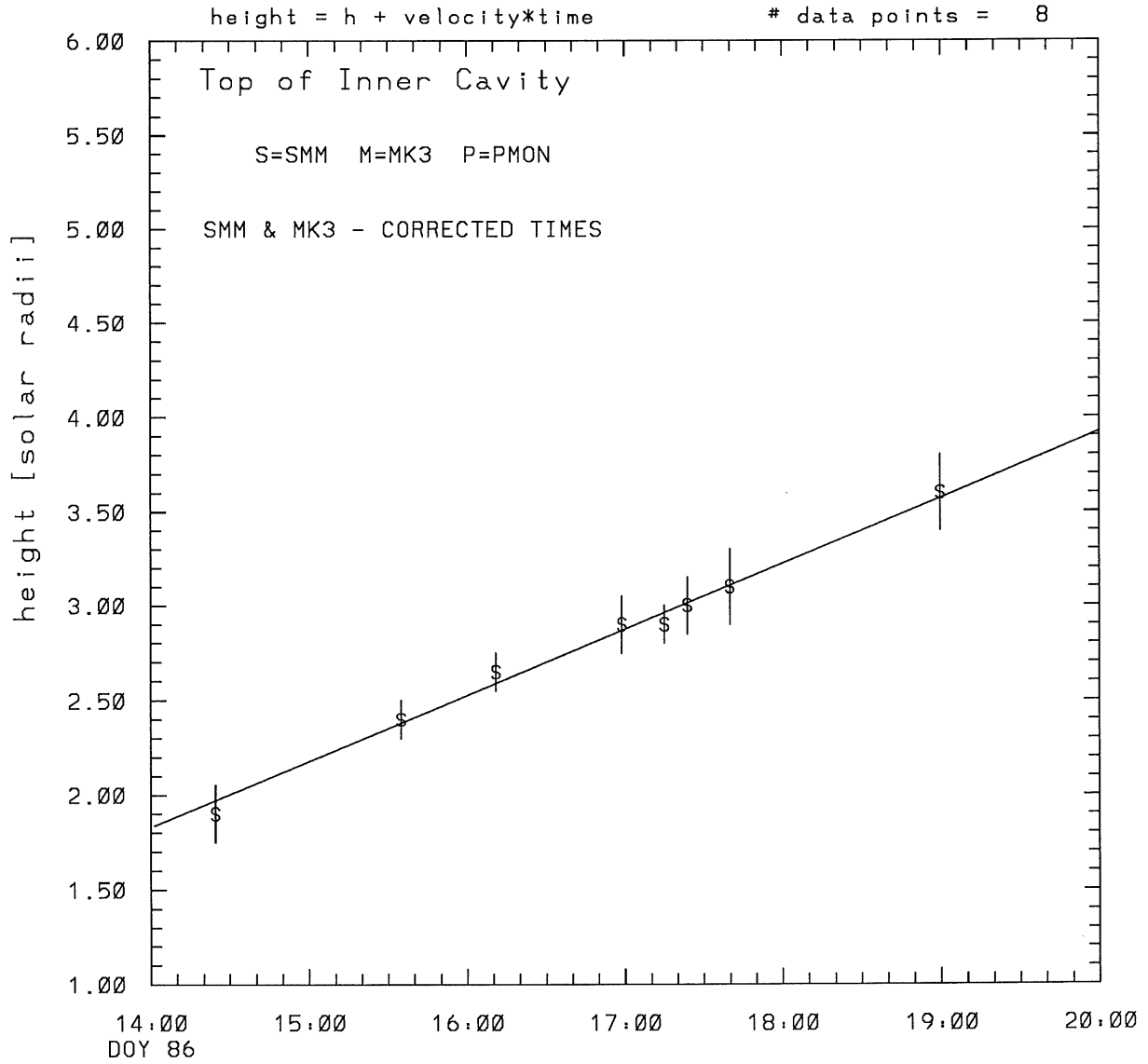
The following info is for estimating goodness of the fit

\*\*\*\*\*

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

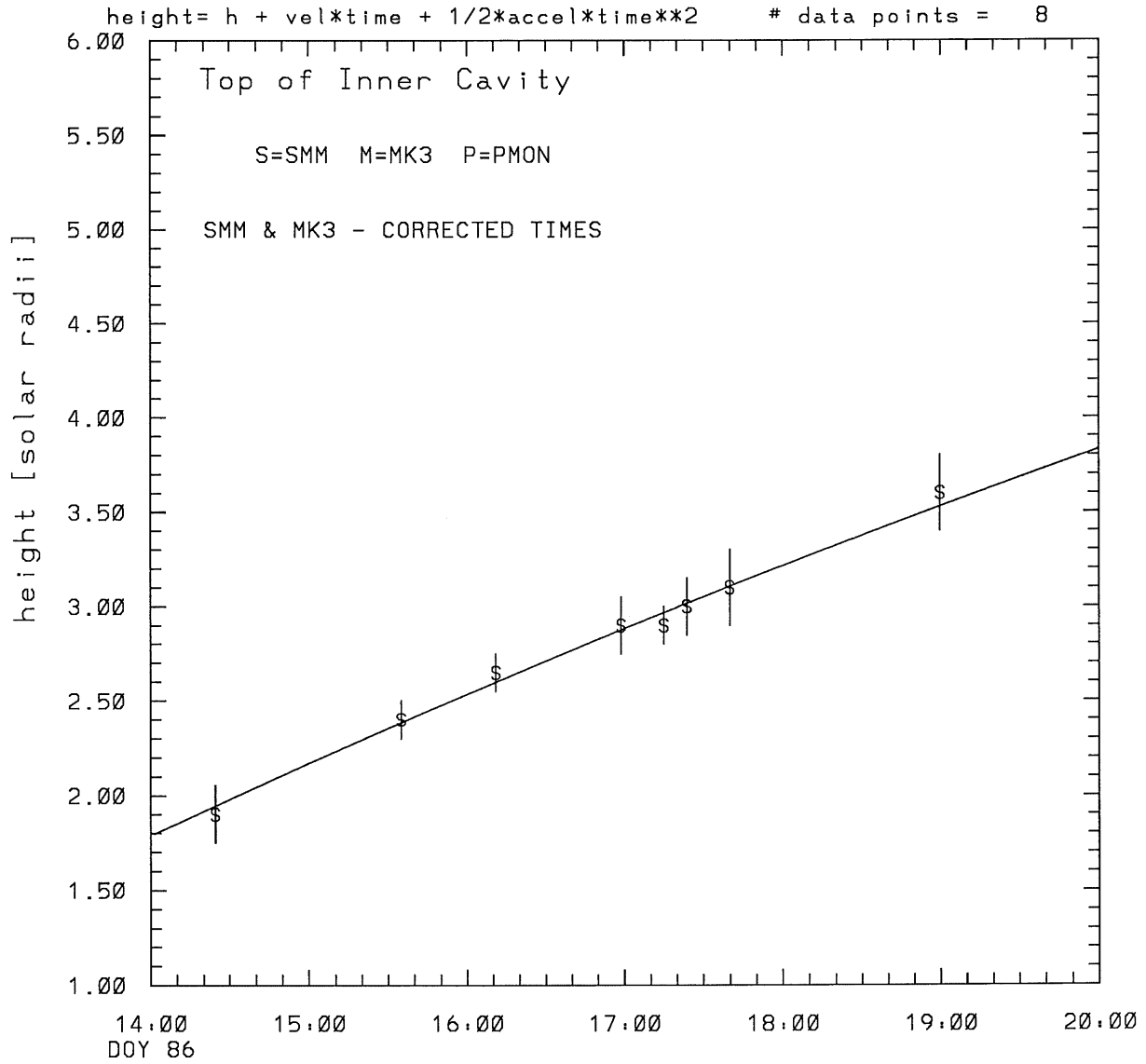
Correlation coefficient is not computable!

SMM C/P 1980 DOY 86 215 +/- 0 degrees



tstart=DOY 86 11:39 +/- 1.6 [min.]  
radial velocity= 67. +/- 3. [km/sec]

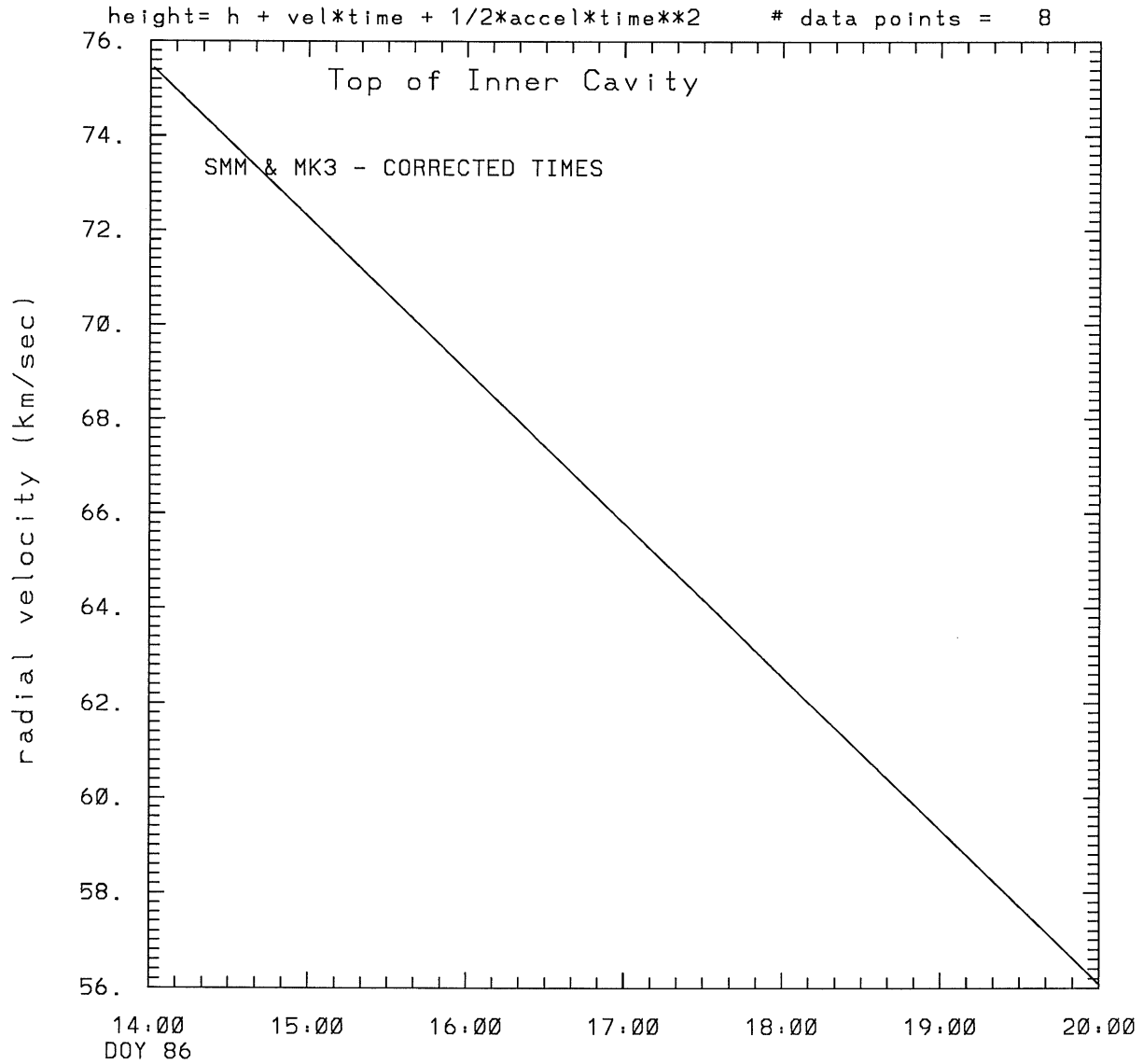
SMM C/P 1980 DOY 86 215 +/- 0 degrees



tstart=DOY 86 12: 4 +/- 53.1 [min.]

radial acceleration =  $-0.0009 \pm 0.0012$  [km/sec\*\*2]

SMM C/P 1980 DOY 86 215 +/- 0 degrees



14:00  
DOY 86

tstart=DOY 86 12: 4 +/- 53.1 [min.]

radial acceleration =  $-.899E-03$  km/sec\*\*2

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

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

year	doy	time	radii	error in radius	angle	error in angle	datatype
1980	86	14:24:28	1.90	+/- 0.15	215.0	+/- 0.5	SMM
1980	86	15:34:54	2.40	+/- 0.10	215.0	+/- 0.5	SMM
1980	86	16:10:55	2.65	+/- 0.10	215.0	+/- 0.5	SMM
1980	86	16:58:47	2.90	+/- 0.15	215.0	+/- 1.0	SMM
1980	86	17:15: 3	2.90	+/- 0.10	215.0	+/- 0.5	SMM
1980	86	17:23:48	3.00	+/- 0.15	215.0	+/- 1.0	SMM
1980	86	17:40: 4	3.10	+/- 0.20	215.0	+/- 1.0	SMM
1980	86	18:59:46	3.60	+/- 0.20	215.0	+/- 1.0	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Inner Cavity  
\*\*\*\*\*

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

START TIME:

Event began at  $t = 0 + -0.143E+03 +/- 0.163E+01$  [minutes]  
In more convenient units:  
Event began at DOY 86 11:39 +/- 0.163E+01 [minutes]

Origin defined at DOY 86 14: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 67. +/- 3. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.183E+01 +/- 0.451E-01$  [solar radii]  
 $c(2) = 0.581E-02 +/- 0.273E-03$  [radii/min]  
 $c(2) = 0.674E+02 +/- 0.317E+01$  [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  $c(1) = 0.41916E-01$  [radii] see Bevington pg. 114  
error in  $c(2) = 0.22544E-03$  [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) = 215. +/- 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 14:24 = 0.000E+00 km/sec

The TOTAL velocity at 14:24 = 67. km/sec

The TANGENTIAL velocity at 15:34 = 0.000E+00 km/sec

The TOTAL velocity at 15:34 = 67. km/sec

The TANGENTIAL velocity at 16:10 = 0.000E+00 km/sec

The TOTAL velocity at 16:10 = 67. km/sec

The TANGENTIAL velocity at 16:58 = 0.000E+00 km/sec

The TOTAL velocity at 16:58 = 67. km/sec

The TANGENTIAL velocity at 17:15 = 0.000E+00 km/sec

The TOTAL velocity at 17:15 = 67. km/sec

The TANGENTIAL velocity at 17:23 = 0.000E+00 km/sec

The TOTAL velocity at 17:23 = 67. km/sec

The TANGENTIAL velocity at 17:40 = 0.000E+00 km/sec

The TOTAL velocity at 17:40 = 67. km/sec

The TANGENTIAL velocity at 18:59 = 0.000E+00 km/sec

The TOTAL velocity at 18:59 = 67. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.50  
Standard Deviation in start time measurement = 0.787E+02  
Error in time = 0.21151E+02 using best fit method  
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.258E-02  
Reduced Chi Squared = 0.810E-02  
Chi Squared = 0.486E-01  
The probability for exceeding chi square = 0.100E+01



The correlation coefficient = 0.996E+00

The probability that no LINEAR correlation exists between the variables = 0.6991E-07

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
1980	86	14:24:28	1.90	+/- 0.15	215.0	+/- 0.5	SMM
1980	86	15:34:54	2.40	+/- 0.10	215.0	+/- 0.5	SMM
1980	86	16:10:55	2.65	+/- 0.10	215.0	+/- 0.5	SMM
1980	86	16:58:47	2.90	+/- 0.15	215.0	+/- 1.0	SMM
1980	86	17:15: 3	2.90	+/- 0.10	215.0	+/- 0.5	SMM
1980	86	17:23:48	3.00	+/- 0.15	215.0	+/- 1.0	SMM
1980	86	17:40: 4	3.10	+/- 0.20	215.0	+/- 1.0	SMM
1980	86	18:59:46	3.60	+/- 0.20	215.0	+/- 1.0	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Inner Cavity  
\*\*\*\*\*

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

START TIME:

Event began at  $t = 0 + -0.116E+03 +/- 0.531E+02$  [minutes]  
In more convenient units:  
Event began at DOY 86 12: 4 +/- 0.531E+02 [minutes]

Origin defined at DOY 86 14: 0

RADIAL INFORMATION:

RADIAL ACCELERATION =  $-0.899E-03 +/- 0.121E-02$  km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.179E+01 +/- 0.739E-01$  [solar radii]  
 $c(2) = 0.651E-02 +/- 0.986E-03$  [radii/min]  
 $c(2) = 0.755E+02 +/- 0.114E+02$  [km/sec]  
 $c(3) = -0.233E-05 +/- 0.314E-05$  [radii/min\*\*2]  
 $c(3) = -0.899E-03 +/- 0.121E-02$  [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in  $c(1) = 0.68102E-01$  [radii] Bevington pg 154 (8-30)  
Exact error in  $c(1) = 0.22857E-01$  [radii] Bevington pg 154 (8-28)  
Approximate error in  $c(2) = 0.87422E-03$  [radii/min] Bevington pg 154 (8-30)

Exact error in c(2) = 0.32690E-03 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.26406E-05 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.10583E-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) = 215. +/- 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 14:24 = 0.000E+00 km/sec  
The TOTAL velocity at 14:24 = 74. km/sec

The TANGENTIAL velocity at 15:34 = 0.000E+00 km/sec  
The TOTAL velocity at 15:34 = 70. km/sec

The TANGENTIAL velocity at 16:10 = 0.000E+00 km/sec  
The TOTAL velocity at 16:10 = 68. km/sec

The TANGENTIAL velocity at 16:58 = 0.000E+00 km/sec  
The TOTAL velocity at 16:58 = 66. km/sec

The TANGENTIAL velocity at 17:15 = 0.000E+00 km/sec  
The TOTAL velocity at 17:15 = 65. km/sec

The TANGENTIAL velocity at 17:23 = 0.000E+00 km/sec  
The TOTAL velocity at 17:23 = 65. km/sec

The TANGENTIAL velocity at 17:40 = 0.000E+00 km/sec  
The TOTAL velocity at 17:40 = 64. km/sec

The TANGENTIAL velocity at 18:59 = 0.000E+00 km/sec  
The TOTAL velocity at 18:59 = 59. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.50  
Standard Deviation in start time measurement = 0.787E+02  
Value of reduced Chi Squared returned from nllst2 = 0.276E-02  
Reduced Chi Squared = 0.156E-01

Chi Squared = 0.781E-01

The probability for exceeding chi square = 0.100E+01

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 = 0.8576E+00

The correlation between the data and the time\*\*2 term = 0.7917E+00

The correlation between the data and the complete equation of motion = 0.9847E+00

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