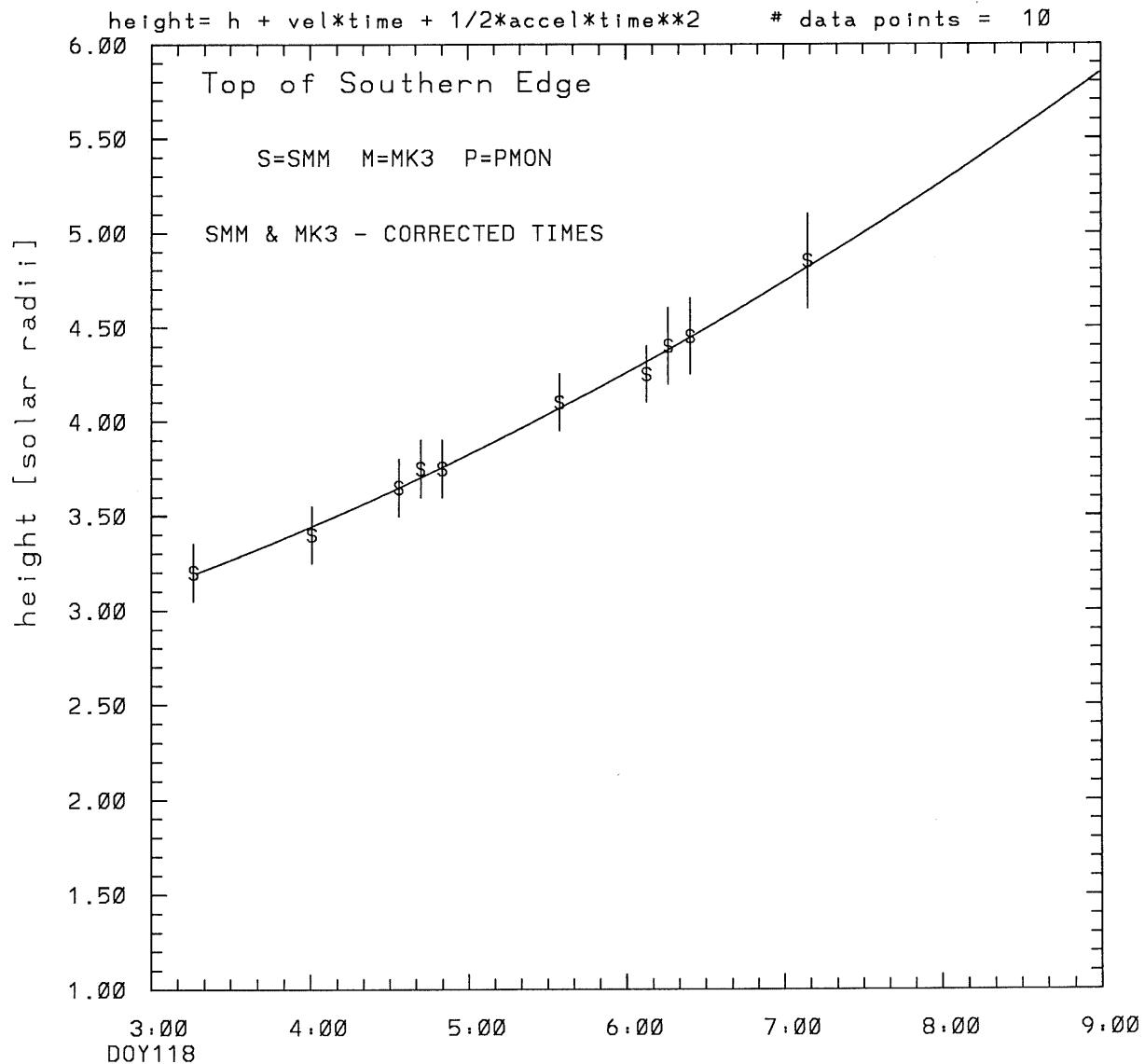
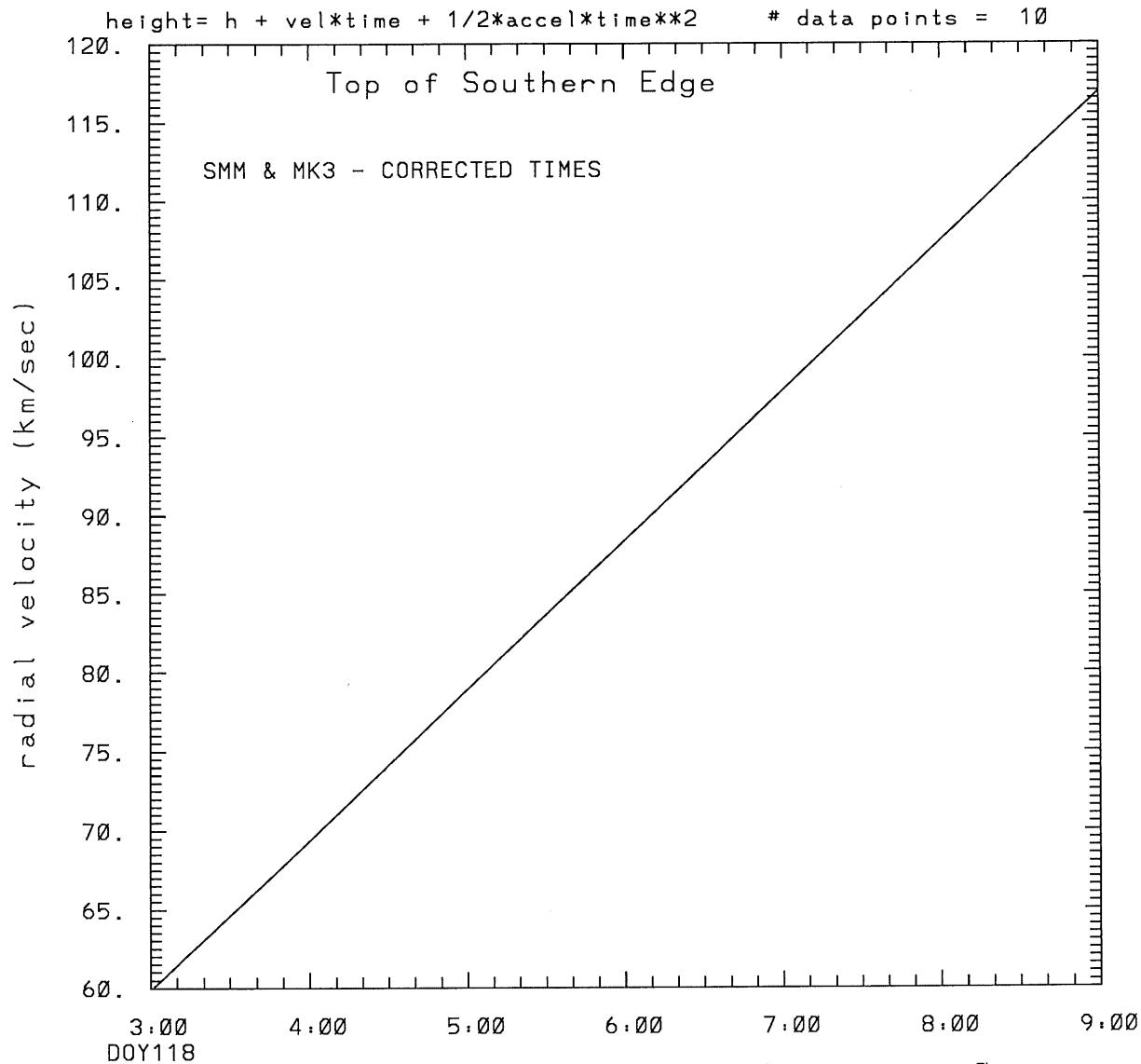


SMM C/P 1987 DOY118 255 +/- 0 degrees



tstart=DOY117 20:43 from derivative=0  
Event begins at 2.13 Solar Radii  
radial acceleration= 0.0026 +/- 0.0011 [km/sec\*\*2]

SMM C/P 1987 DOY118 255 +/- 0 degrees



tstart=DOY117 20:43 from derivative=0  
Event begins at 2.13 Solar Radii  
radial acceleration=0.264E-02 km/sec\*\*2

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

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

year	doy	time	radii	radius	error in radii	error in radius	angle	angle	error in angle	datatype
1987	118	3:15:52	3.20	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	4: 0:33	3.40	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	4:33:33	3.65	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	4:41:49	3.75	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	4:50: 6	3.75	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	5:34:47	4.10	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	6: 7:46	4.25	+/- 0.15	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	6:16: 3	4.40	+/- 0.20	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	6:24:20	4.45	+/- 0.20	255.0	+/- 0.5	255.0	+/- 1.0	1.0	SMM
1987	118	7: 9: 1	4.85	+/- 0.25	255.0	+/- 1.0	255.0	+/- 1.0	1.0	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Southern Edge  
\*\*\*\*\*

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

#### START TIME:

Event began at t = 0 + -0.296E+03 +/- 0.282E+01 [minutes]

In more convenient units:

Event began at DOY 117 22: 4 +/- 0.282E+01 [minutes]

Origin defined at DOY118 3: 0

#### RADIAL INFORMATION:

RADIAL VELOCITY = 79. +/- 3. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.303E+01 +/- 0.330E-01 [solar radii]  
c(2) = 0.685E-02 +/- 0.239E-03 [radii/min]  
c(2) = 0.795E+02 +/- 0.277E+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)= 0.40567E-01 [radii] see Bevington pg. 114

error in c(2)= 0.26375E-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) = 255. +/- 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 3:15 = 0.000E+00 km/sec

The TOTAL velocity at 3:15 = 79. km/sec

The TANGENTIAL velocity at 4: 0 = 0.000E+00 km/sec

The TOTAL velocity at 4: 0 = 79. km/sec

The TANGENTIAL velocity at 4:33 = 0.000E+00 km/sec

The TOTAL velocity at 4:33 = 79. km/sec

The TANGENTIAL velocity at 4:41 = 0.000E+00 km/sec

The TOTAL velocity at 4:41 = 79. km/sec

The TANGENTIAL velocity at 4:50 = 0.000E+00 km/sec

The TOTAL velocity at 4:50 = 79. km/sec

The TANGENTIAL velocity at 5:34 = 0.000E+00 km/sec

The TOTAL velocity at 5:34 = 79. km/sec

The TANGENTIAL velocity at 6: 7 = 0.000E+00 km/sec

The TOTAL velocity at 6: 7 = 79. km/sec

The TANGENTIAL velocity at 6:16 = 0.000E+00 km/sec

The TOTAL velocity at 6:16 = 79. km/sec

The TANGENTIAL velocity at 6:24 = 0.000E+00 km/sec

The TOTAL velocity at 6:24 = 79. km/sec

The TANGENTIAL velocity at 7: 9 = 0.000E+00 km/sec

The TOTAL velocity at 7: 9 = 79. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.52

Standard Deviation in start time measurement = 0.692E+02  
Error in time = 0.23812E+02 using best fit method  
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.232E-02  
Reduced Chi Squared = 0.236E-01  
Chi Squared = 0.189E+00  
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.995E+00  
The probability that no LINEAR correlation exists between the variables = -0.6659E-08  
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
1987	118	3:15:52	3.20	+/- 0.15	255.0	+/- 0.5	SMM	
1987	118	4: 0:33	3.40	+/- 0.15	255.0	+/- 1.0	SMM	
1987	118	4:33:33	3.65	+/- 0.15	255.0	+/- 1.0	SMM	
1987	118	4:41:49	3.75	+/- 0.15	255.0	+/- 1.0	SMM	
1987	118	4:50: 6	3.75	+/- 0.15	255.0	+/- 1.0	SMM	
1987	118	5:34:47	4.10	+/- 0.15	255.0	+/- 1.0	SMM	
1987	118	6: 7:46	4.25	+/- 0.15	255.0	+/- 1.0	SMM	
1987	118	6:16: 3	4.40	+/- 0.20	255.0	+/- 1.0	SMM	
1987	118	6:24:20	4.45	+/- 0.20	255.0	+/- 1.0	SMM	
1987	118	7: 9: 1	4.85	+/- 0.25	255.0	+/- 1.0	SMM	

\*\*\*\*\*

Structure being measured:

Top of Southern Edge

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

tstart=DOY117 20:43 from derivative = 0

Event begins at 2.13 Solar Radii

Origin defined at DOY118 3: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.264E-02 +/- 0.111E-02 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.311E+01 +/- 0.419E-01 [solar radii]  
c(2) = 0.516E-02 +/- 0.735E-03 [radii/min]  
c(2) = 0.599E+02 +/- 0.853E+01 [km/sec]  
c(3) = 0.683E-05 +/- 0.286E-05 [radii/min\*\*2]  
c(3) = 0.264E-02 +/- 0.111E-02 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.45174E-01 [radii] Bevington pg 154 (8-30)

Exact error in c(1) = 0.49279E-02 [radii] Bevington pg 154 (8-28)

Approximate error in c(2) = 0.74525E-03 [radii/min] Bevington pg 154 (8-30)

Exact error in c(2) = 0.77739E-04 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.27049E-05 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.27143E-06 [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) = 255. +/- 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 3:15 = 0.000E+00 km/sec

The TOTAL velocity at 3:15 = 62. km/sec

The TANGENTIAL velocity at 4: 0 = 0.000E+00 km/sec

The TOTAL velocity at 4: 0 = 69. km/sec

The TANGENTIAL velocity at 4:33 = 0.000E+00 km/sec

The TOTAL velocity at 4:33 = 75. km/sec

The TANGENTIAL velocity at 4:41 = 0.000E+00 km/sec

The TOTAL velocity at 4:41 = 76. km/sec

The TANGENTIAL velocity at 4:50 = 0.000E+00 km/sec

The TOTAL velocity at 4:50 = 77. km/sec

The TANGENTIAL velocity at 5:34 = 0.000E+00 km/sec

The TOTAL velocity at 5:34 = 84. km/sec

The TANGENTIAL velocity at 6: 7 = 0.000E+00 km/sec

The TOTAL velocity at 6: 7 = 90. km/sec

The TANGENTIAL velocity at 6:16 = 0.000E+00 km/sec

The TOTAL velocity at 6:16 = 91. km/sec

The TANGENTIAL velocity at 6:24 = 0.000E+00 km/sec

The TOTAL velocity at 6:24 = 92. km/sec

The TANGENTIAL velocity at 7: 9 = 0.000E+00 km/sec

The TOTAL velocity at 7: 9 = 99. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

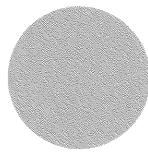
\*\*\*\*\*

Fit is ok [ier=1]

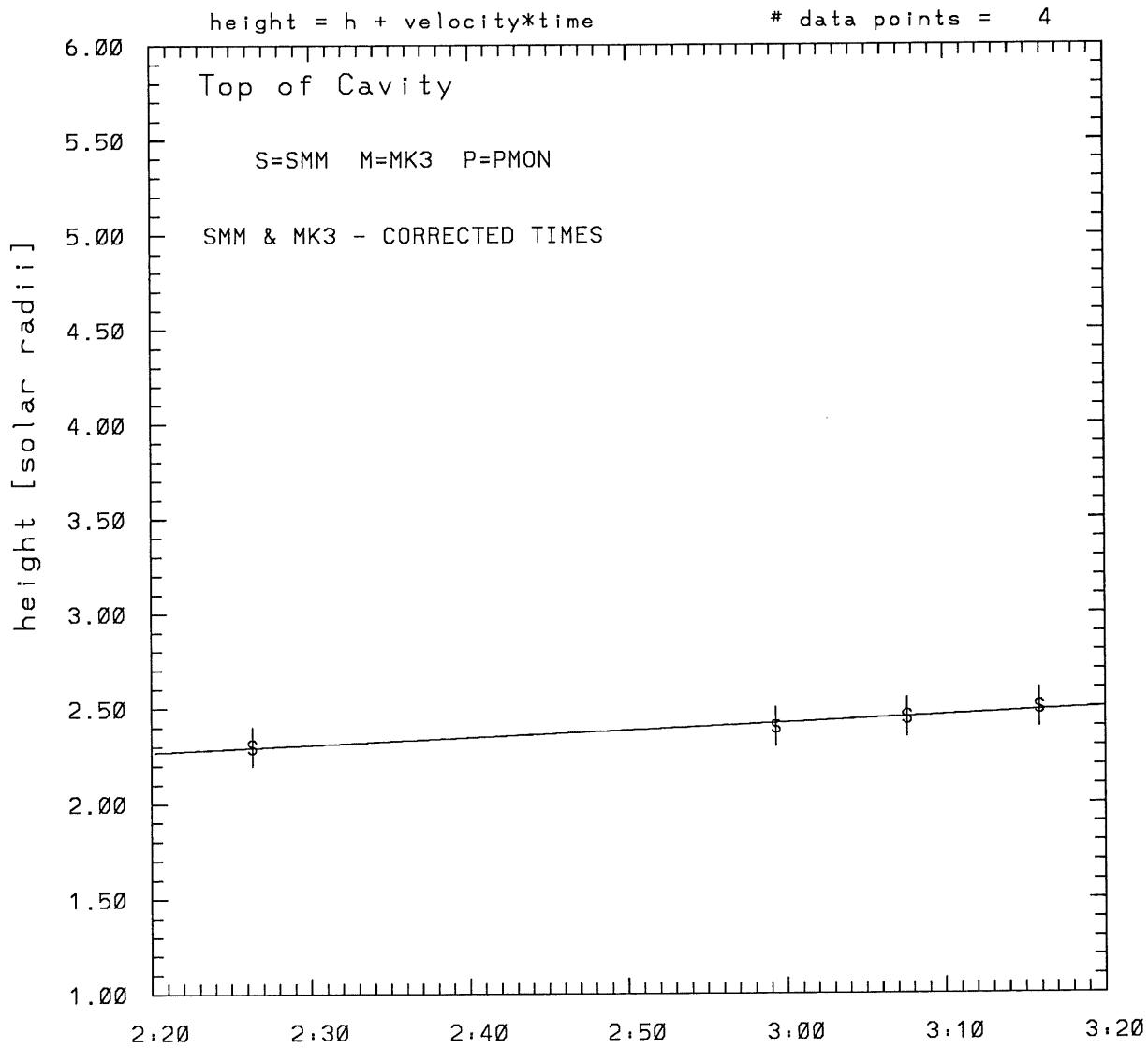
( Standard Deviation in the height = 0.52  
Standard Deviation in start time measurement = 0.692E+02  
Value of reduced Chi Squared returned from nllst2 = 0.152E-02  
Reduced Chi Squared = 0.933E-02  
Chi Squared = 0.653E-01  
The probability for exceeding chi square = 0.100E+01

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 = 0.9419E+00  
The correlation between the data and the  $time^{**2}$  term = 0.8726E+00  
The correlation between the data and the complete equation of motion = 0.9923E+00  
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

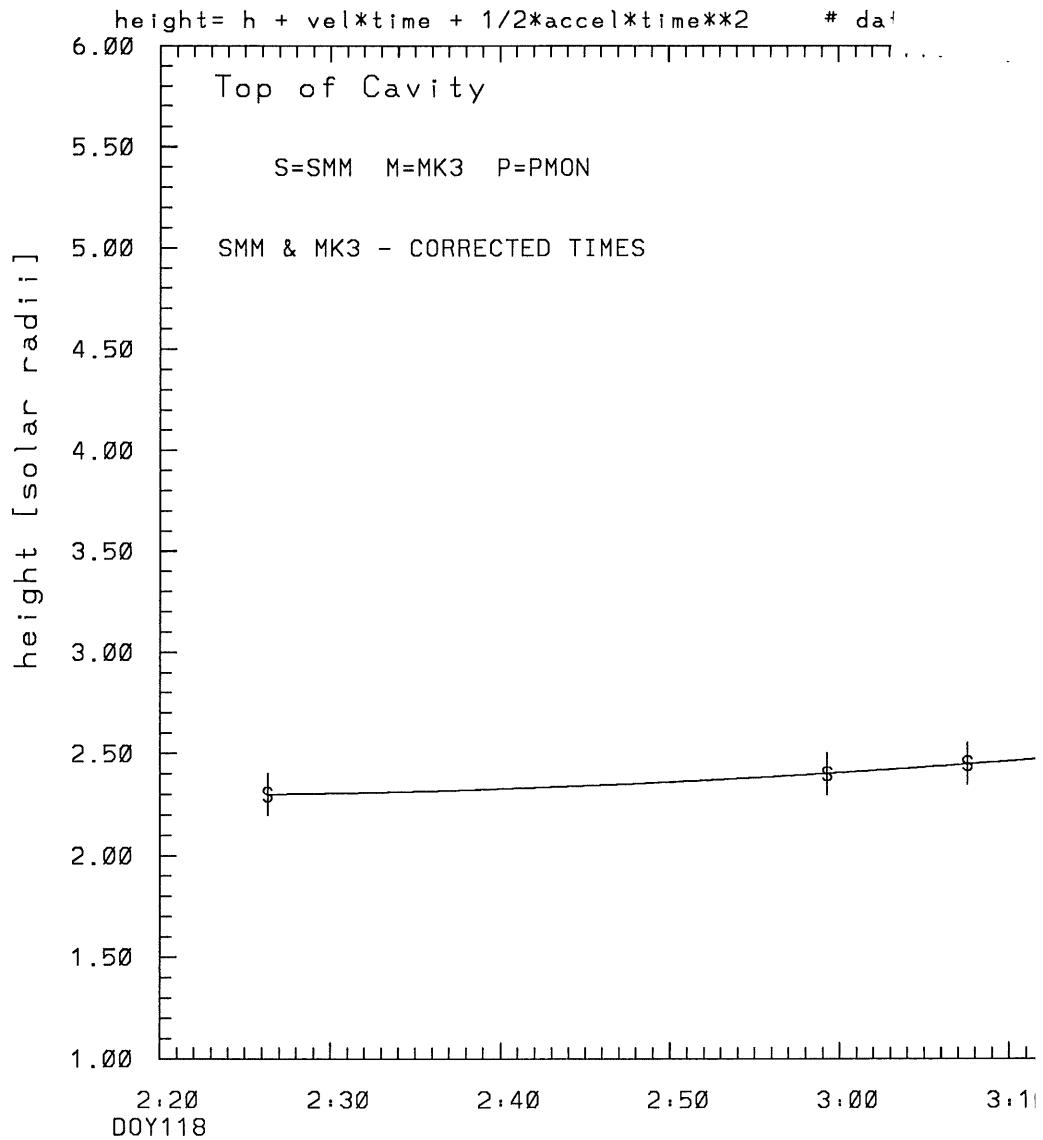


SMM C/P 1987 DOY118 268 +/- 0 degrees



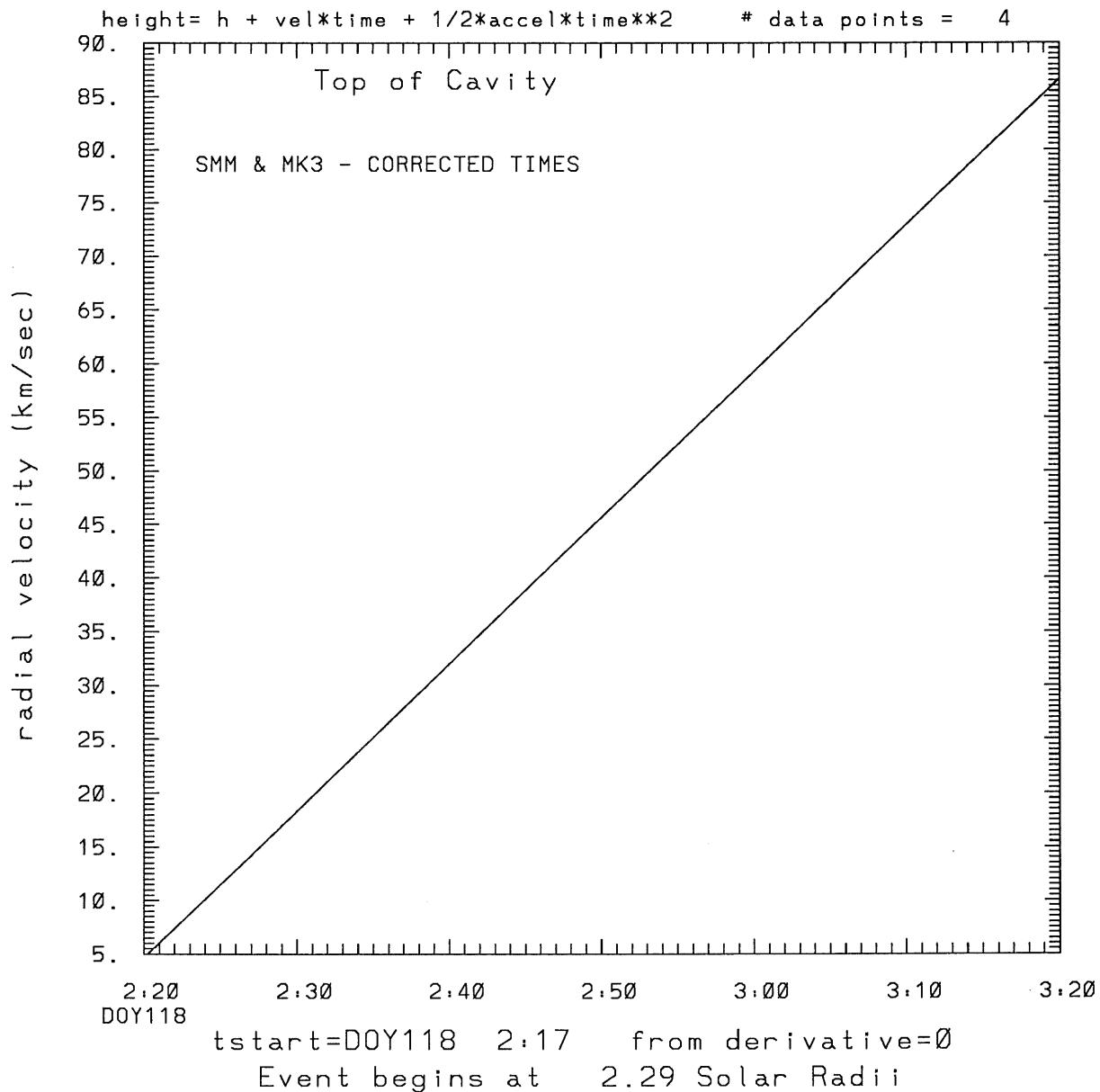
tstart=DOY117 20:54 +/- 11.0 [min.]  
radial velocity= 45. +/- 5. [km/sec]

SMM C/P 1987 DOY118 268 +/- 0



tstart=DOY118 2:17 from derivative=  
Event begins at 2.29 Solar Radii  
radial acceleration= 0.0228 +/- 0.0020 [km/s

SMM C/P 1987 DOY118 268 +/- 0 degrees



\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	error in radii	radius	error in angle	angle	datatype
1987	118	2:26:19	2.30 +/- 0.10	268.0	0.5	268.0 +/- 0.5	SMM
1987	118	2:59:18	2.40 +/- 0.10	268.0	0.5	268.0 +/- 0.5	SMM
1987	118	3: 7:35	2.45 +/- 0.10	268.0	0.5	268.0 +/- 0.5	SMM
1987	118	3:15:52	2.50 +/- 0.10	268.0	0.5	268.0 +/- 0.5	SMM

\*\*\*\*\*

Structure being measured:

Top of Cavity

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at t = 0 + -0.328E+03 +/- 0.110E+02 [minutes]

In more convenient units:

Event began at DOY 117 20:54 +/- 0.110E+02 [minutes]

Origin defined at DOY118 2:20

RADIAL INFORMATION:

RADIAL VELOCITY = 45. +/- 5. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.227E+01 +/- 0.171E-01 [solar radii]

c(2) = 0.387E-02 +/- 0.410E-03 [radii/min]

c(2) = 0.449E+02 +/- 0.476E+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)= 0.20979E-01 [radii] see Bevington pg. 114

error in c(2)= 0.50258E-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) = 268. +/- 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 2:26 = 0.000E+00 km/sec

The TOTAL velocity at 2:26 = 45. km/sec

The TANGENTIAL velocity at 2:59 = 0.000E+00 km/sec

The TOTAL velocity at 2:59 = 45. km/sec

The TANGENTIAL velocity at 3: 7 = 0.000E+00 km/sec

The TOTAL velocity at 3: 7 = 45. km/sec

The TANGENTIAL velocity at 3:15 = 0.000E+00 km/sec

The TOTAL velocity at 3:15 = 45. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.09

Standard Deviation in start time measurement = 0.188E+02

Error in time = 0.69109E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.238E-03

Reduced Chi Squared = 0.933E-03

Chi Squared = 0.187E-02

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.983E+00

The probability that no LINEAR correlation exists between the variables = 0.1652E-01

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
1987	118	2:26:19	2.30	+/- 0.10	268.0	+/- 0.5	SMM	
1987	118	2:59:18	2.40	+/- 0.10	268.0	+/- 0.5	SMM	
1987	118	3: 7:35	2.45	+/- 0.10	268.0	+/- 0.5	SMM	
1987	118	3:15:52	2.50	+/- 0.10	268.0	+/- 0.5	SMM	

\*\*\*\*\*

Structure being measured:

Top of Cavity

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

tstart=DOY118 2:17 from derivative = 0

Event begins at 2.29 Solar Radii

Origin defined at DOY118 2:20

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.228E-01 +/- 0.202E-02 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.230E+01 +/- 0.352E-02 [solar radii]

c(2) = 0.400E-03 +/- 0.314E-03 [radii/min]

c(2) = 0.464E+01 +/- 0.364E+01 [km/sec]

c(3) = 0.589E-04 +/- 0.522E-05 [radii/min\*\*2]

c(3) = 0.228E-01 +/- 0.202E-02 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.49768E-02 [radii] Bevington pg 154 (8-30)

Exact error in c(1) = 0.10839E-02 [radii] Bevington pg 154 (8-28)

Approximate error in c(2) = 0.44348E-03 [radii/min] Bevington pg 154 (8-30)

Exact error in c(2) = 0.19020E-03 [radii/min] Bevington pg 154 (8-28)

Approximate error in c(3) = 0.73778E-05 [radii/min\*\*] Bevington pg 154 (8-30)

Exact error in c(3) = 0.32079E-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) = 268. +/- 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 2:26 = 0.000E+00 km/sec

The TOTAL velocity at 2:26 = 13. km/sec

The TANGENTIAL velocity at 2:59 = 0.000E+00 km/sec

The TOTAL velocity at 2:59 = 58. km/sec

The TANGENTIAL velocity at 3: 7 = 0.000E+00 km/sec

The TOTAL velocity at 3: 7 = 70. km/sec

The TANGENTIAL velocity at 3:15 = 0.000E+00 km/sec

The TOTAL velocity at 3:15 = 81. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.09

Standard Deviation in start time measurement = 0.188E+02

Value of reduced Chi Squared returned from nllst2 = 0.552E-05

Reduced Chi Squared = 0.316E-04

Chi Squared = 0.316E-04

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 = 0.9835E+00

The correlation between the data and the time $^{**2}$  term = 0.9995E+00

The correlation between the data and the complete equation of motion = 0.9995E+00

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