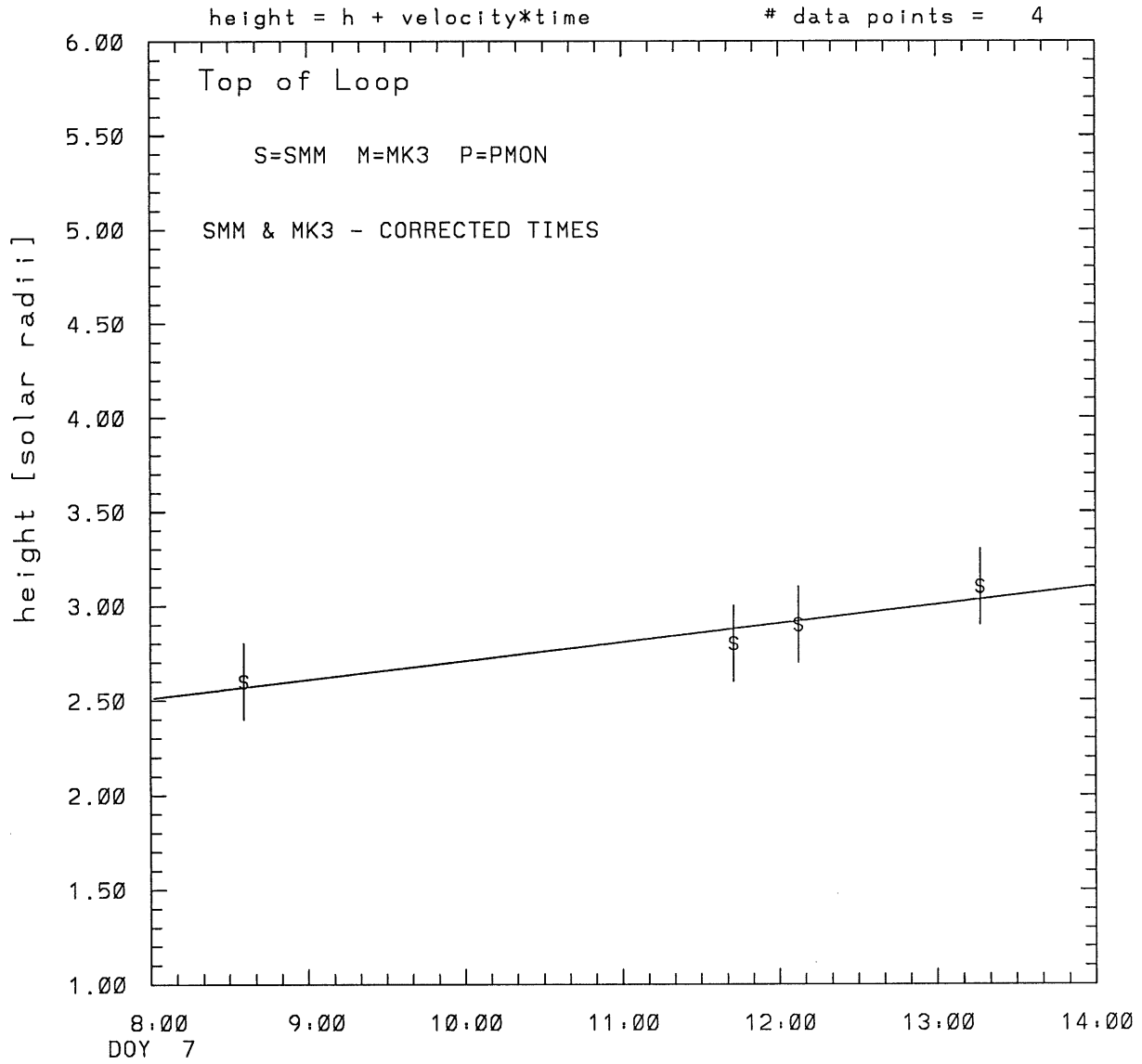
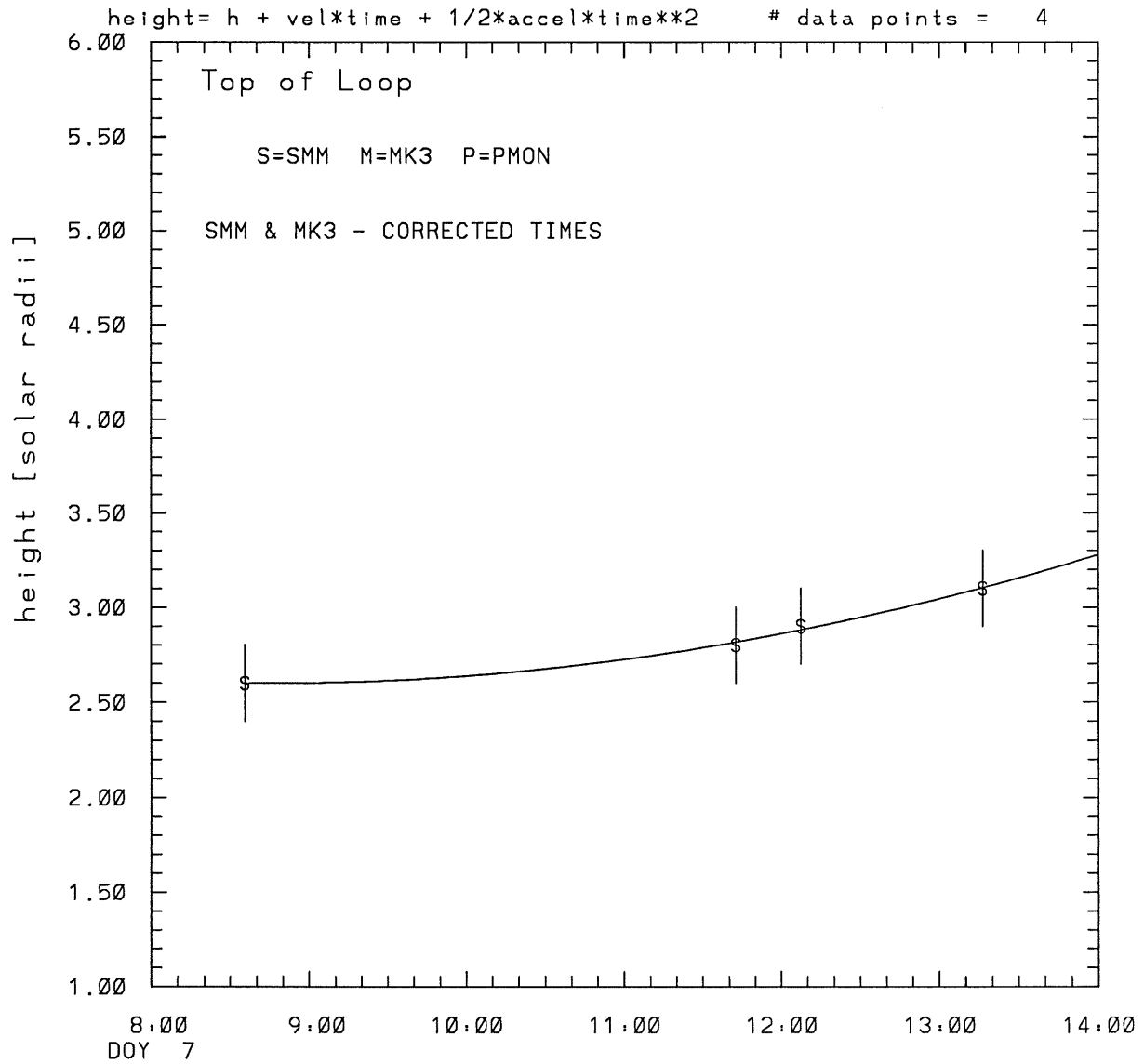


SMM C/P 1989 DOY 7 65 +/- 0 degrees



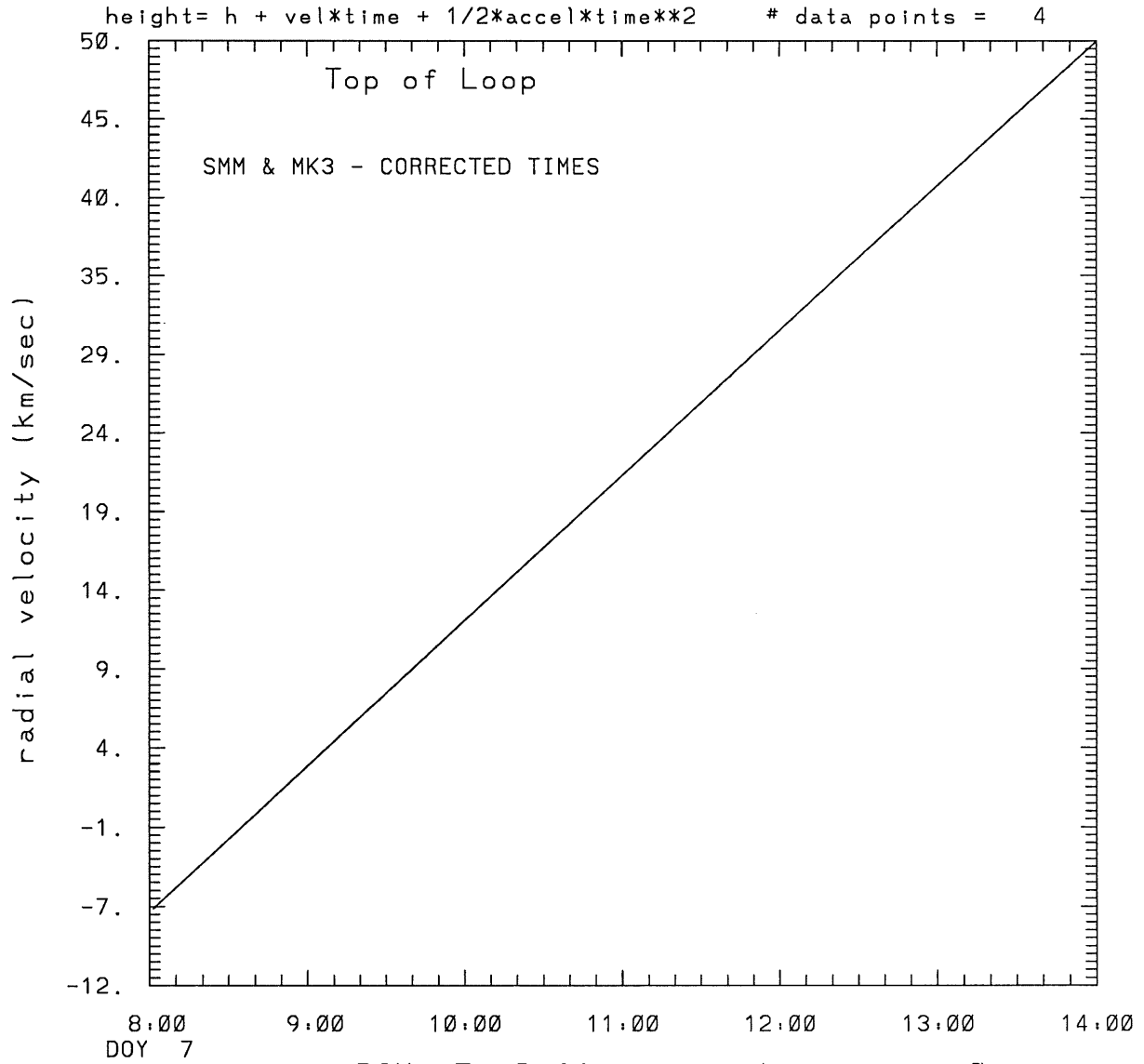
tstart=DOY 6 16:46 +/- 64.6 [min.]
radial velocity= 19. +/- 4. [km/sec]

SMM C/P 1989 DOY 7 65 +/- 0 degrees



tstart=DOY 7 8.44 from derivative=0
Event begins at 2.60 Solar Radii
radial acceleration = 0.0026 +/- 0.0004 [km/sec**2]

SMM C/P 1989 DOY 7 65 +/- 0 degrees



tstart=DOY 7 8:44 from derivative=0
Event begins at 2.60 Solar Radii
radial acceleration=0.264E-02 km/sec**2

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	7	8:35:25	2.60 +/- 0.20	65.0 +/- 0.5	0.5	SMM	
1989	7	11:42:40	2.80 +/- 0.20	65.0 +/- 0.5	0.5	SMM	
1989	7	12: 7:26	2.90 +/- 0.20	65.0 +/- 0.5	0.5	SMM	
1989	7	13:16:18	3.10 +/- 0.20	65.0 +/- 1.0	1.0	SMM	

Structure being measured:
Top of Loop

OUTPUT:

START TIME:

Event began at t = 0 + -0.914E+03 +/- 0.646E+02 [minutes]
In more convenient units:
Event began at DOY 6 16:46 +/- 0.646E+02 [minutes]

Origin defined at DOY 7 8: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 19. +/- 4. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.251E+01 +/- 0.699E-01 [solar radii]
c(2) = 0.165E-02 +/- 0.304E-03 [radii/min]
c(2) = 0.192E+02 +/- 0.352E+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) = 0.85598E-01 [radii] see Bevington pg. 114
error in c(2) = 0.37172E-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) = 65. +/- 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 8:35 = 0.000E+00 km/sec
The TOTAL velocity at 8:35 = 19. km/sec

The TANGENTIAL velocity at 11:42 = 0.000E+00 km/sec

The TOTAL velocity at 11:42 = 19. km/sec

The TANGENTIAL velocity at 12: 7 = 0.000E+00 km/sec

The TOTAL velocity at 12: 7 = 19. km/sec

The TANGENTIAL velocity at 13:16 = 0.000E+00 km/sec

The TOTAL velocity at 13:16 = 19. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.21

Standard Deviation in start time measurement = 0.104E+03

Error in time = 0.66188E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.398E-02

Reduced Chi Squared = 0.161E-01

Chi Squared = 0.323E-01

The probability for exceeding chi square = 0.996E+00

The correlation coefficient = 0.953E+00

The probability that no LINEAR correlation exists between the variables = 0.47091

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

This is a 2 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1989	7	8:35:25	2.60 +/- 0.20	65.0 +/- 0.5	0.5	SMM	
1989	7	11:42:40	2.80 +/- 0.20	65.0 +/- 0.5	0.5	SMM	
1989	7	12: 7:26	2.90 +/- 0.20	65.0 +/- 0.5	0.5	SMM	
1989	7	13:16:18	3.10 +/- 0.20	65.0 +/- 1.0	1.0	SMM	

Structure being measured:
Top of Loop

OUTPUT:

START TIME:

tstart=DOY 7 8:44 from derivative = 0
Event begins at 2.60 Solar Radii
Origin defined at DOY 7 8: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.264E-02 +/- 0.448E-03 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.261E+01 +/- 0.264E-01 [solar radii]
c(2) = -0.602E-03 +/- 0.392E-03 [radii/min]
c(2) = -0.698E+01 +/- 0.455E+01 [km/sec]
c(3) = 0.682E-05 +/- 0.116E-05 [radii/min**2]
c(3) = 0.264E-02 +/- 0.448E-03 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.37324E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.86229E-02 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.55495E-03 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.26977E-03 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.16372E-05 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.77425E-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) = 65. +/- 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 8:35 = 0.000E+00 km/sec

The TOTAL velocity at 8:35 = -1. km/sec

The TANGENTIAL velocity at 11:42 = 0.000E+00 km/sec

The TOTAL velocity at 11:42 = 28. km/sec

The TANGENTIAL velocity at 12: 7 = 0.000E+00 km/sec

The TOTAL velocity at 12: 7 = 32. km/sec

The TANGENTIAL velocity at 13:16 = 0.000E+00 km/sec

The TOTAL velocity at 13:16 = 43. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.21

Standard Deviation in start time measurement = 0.104E+03

Value of reduced Chi Squared returned from nllst2 = 0.326E-03

Reduced Chi Squared = 0.171E-02

Chi Squared = 0.171E-02

The probability for exceeding chi square = 0.986E+00

For a second order fit 3 correlation coefficients are given:

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

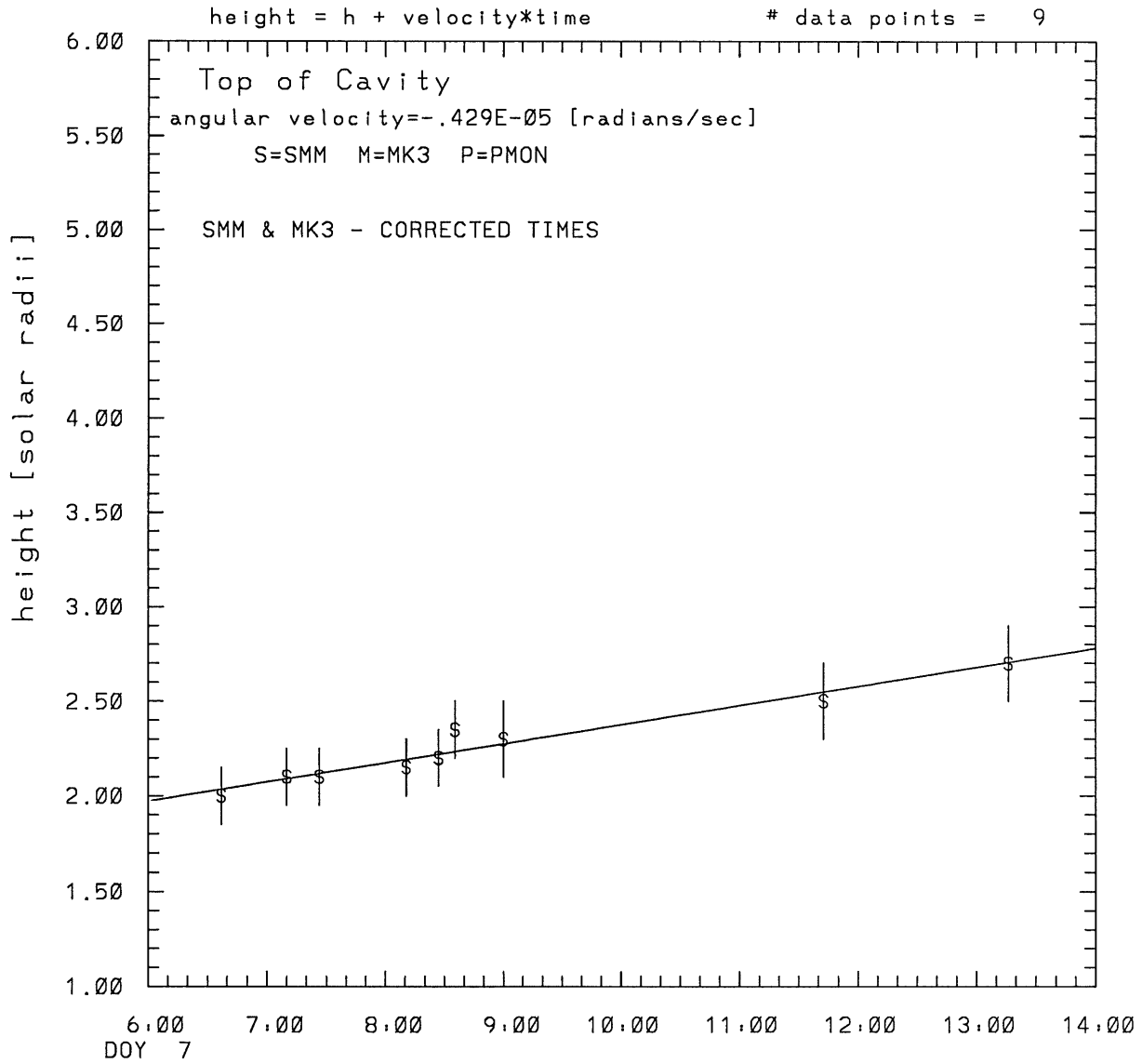
The correlation between the data and the term linear in time = 0.9529E+00

The correlation between the data and the time**2 term = 0.9945E+00

The correlation between the data and the complete equation of motion = 0.9950E+00

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

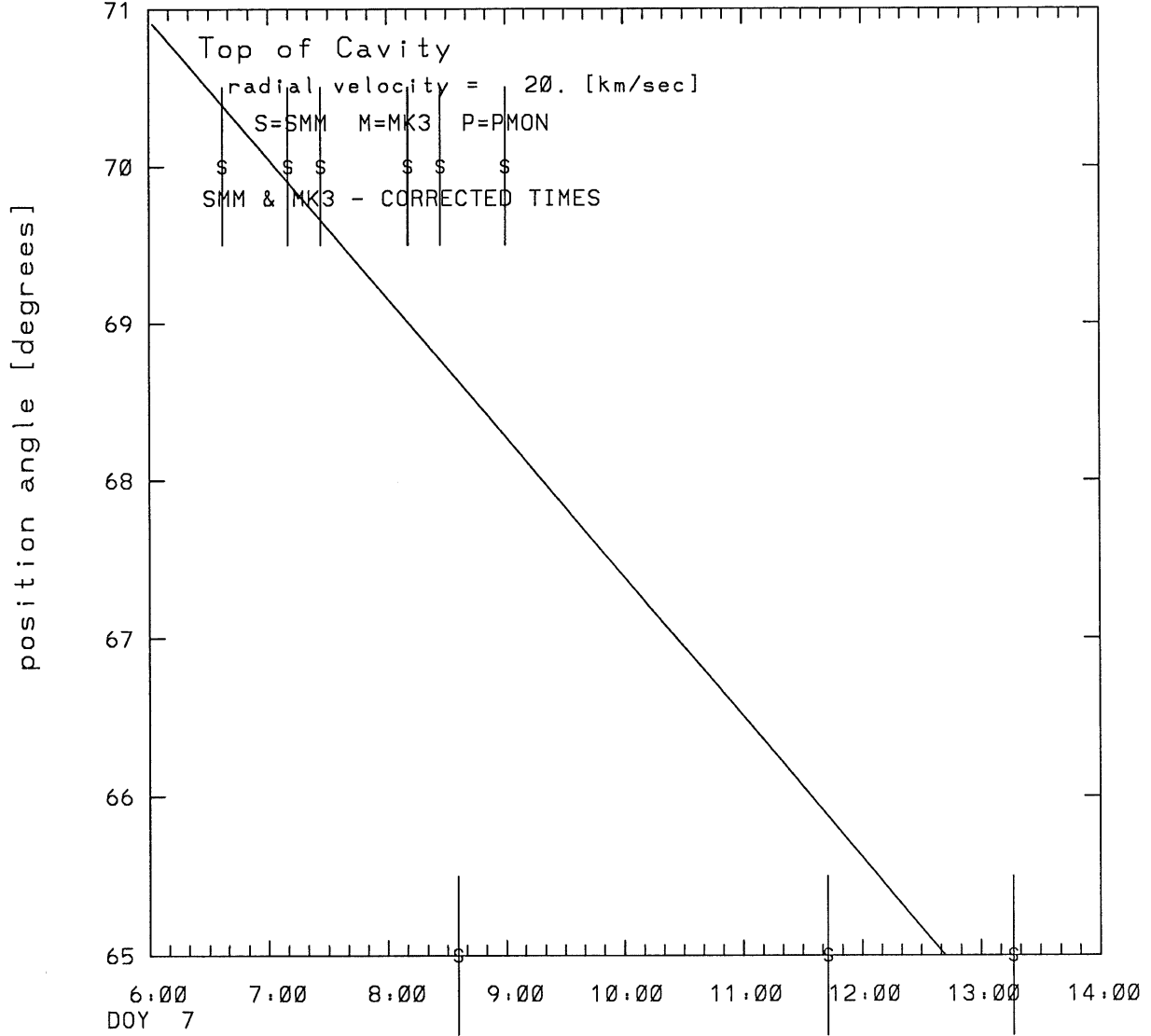
SMM C/P 1989 DOY 7 68 +/- 3 degrees



tstart=DOY 6 20:22 +/- 3.6 [min.]
radial velocity= 20. +/- 2. [km/sec]

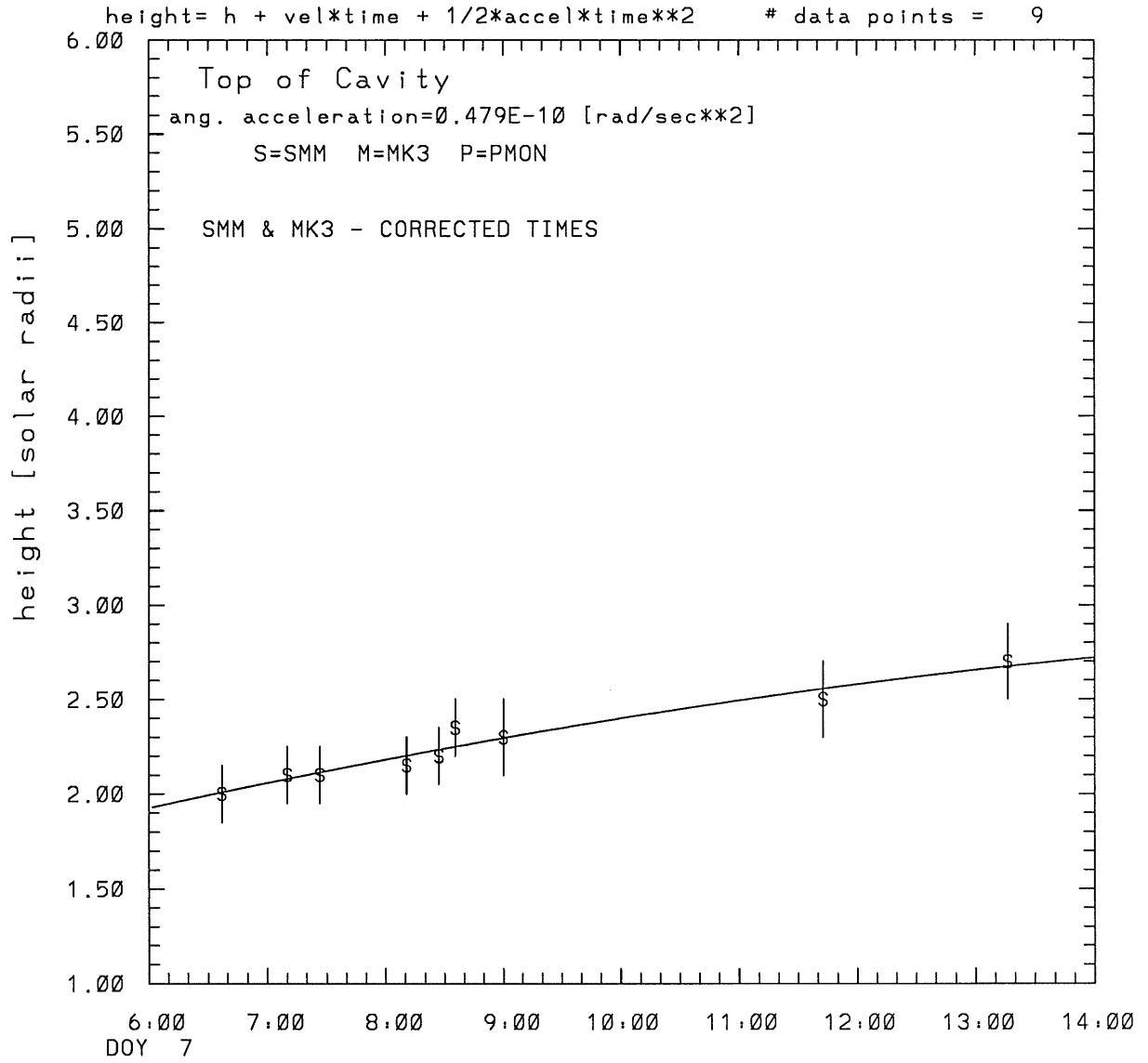
SMM C/P 1989 DOY 7 68 +/- 3 degrees

angle = initial angle + angular velocity * time # data points = 9



tstart=DOY 6 20:22 +/- 3.6 [min.]
angular velocity = $-.429E-05 \pm 0.124E-05$ [rad/sec]

SMM C/P 1989 DOY 7 68 +/- 3 degrees



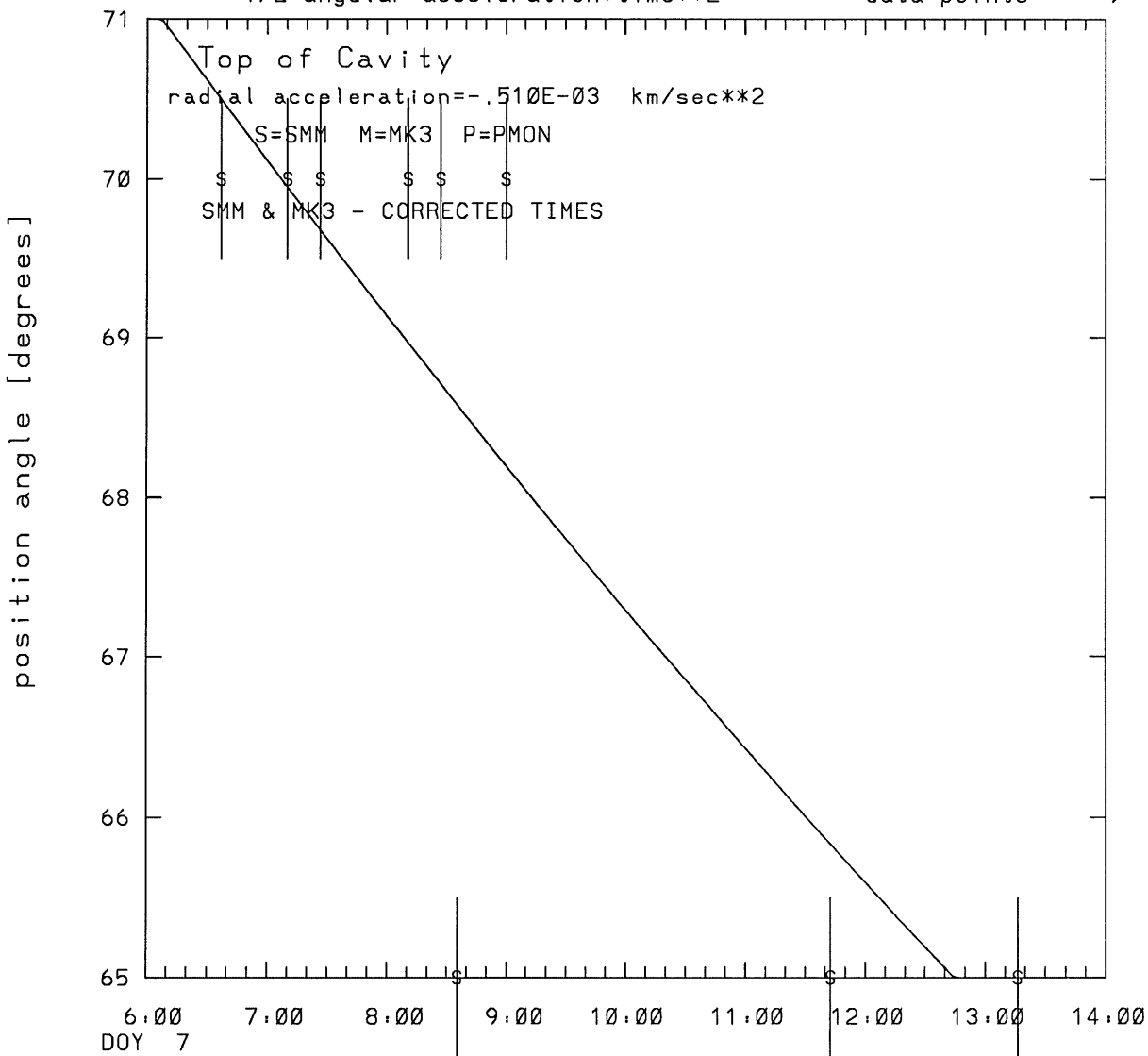
tstart=DOY 7 0:24 +/- 33.7 [min.]

radial acceleration = $-0.0005 +/- 0.0005$ [km/sec**2]

SMM C/P 1989 DOY 7 68 +/- 3 degrees

angle = initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2

data points = 9

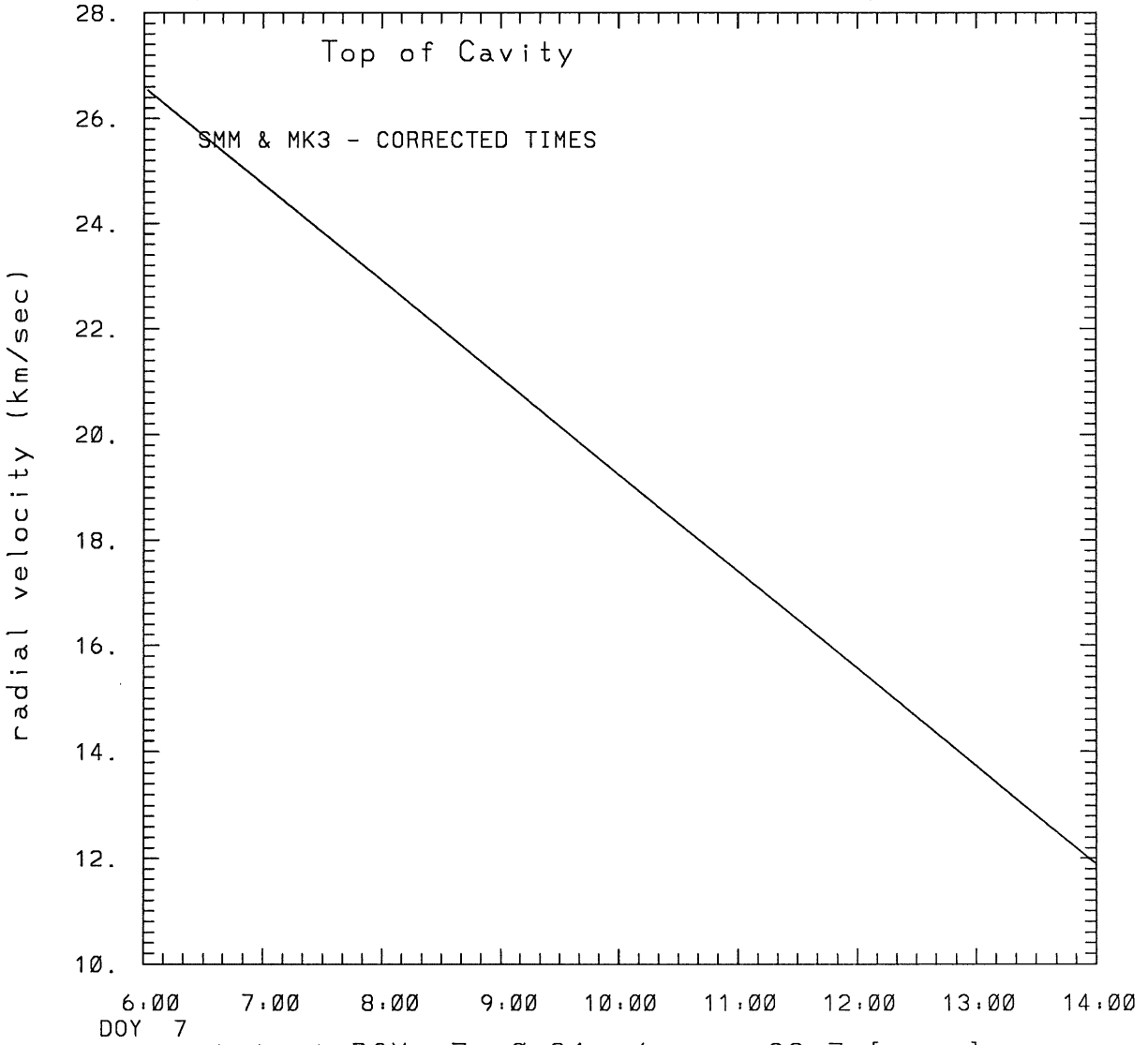


tstart = DOY 7 0.24 +/- 33.7 [min.]

angular acceleration = $0.479E-10$ +/- $0.410E-09$ [rad/sec**2]

SMM C/P 1989 DOY 7 68 +/- 3 degrees

height= h + vel*time + 1/2*accel*t # data points = 9



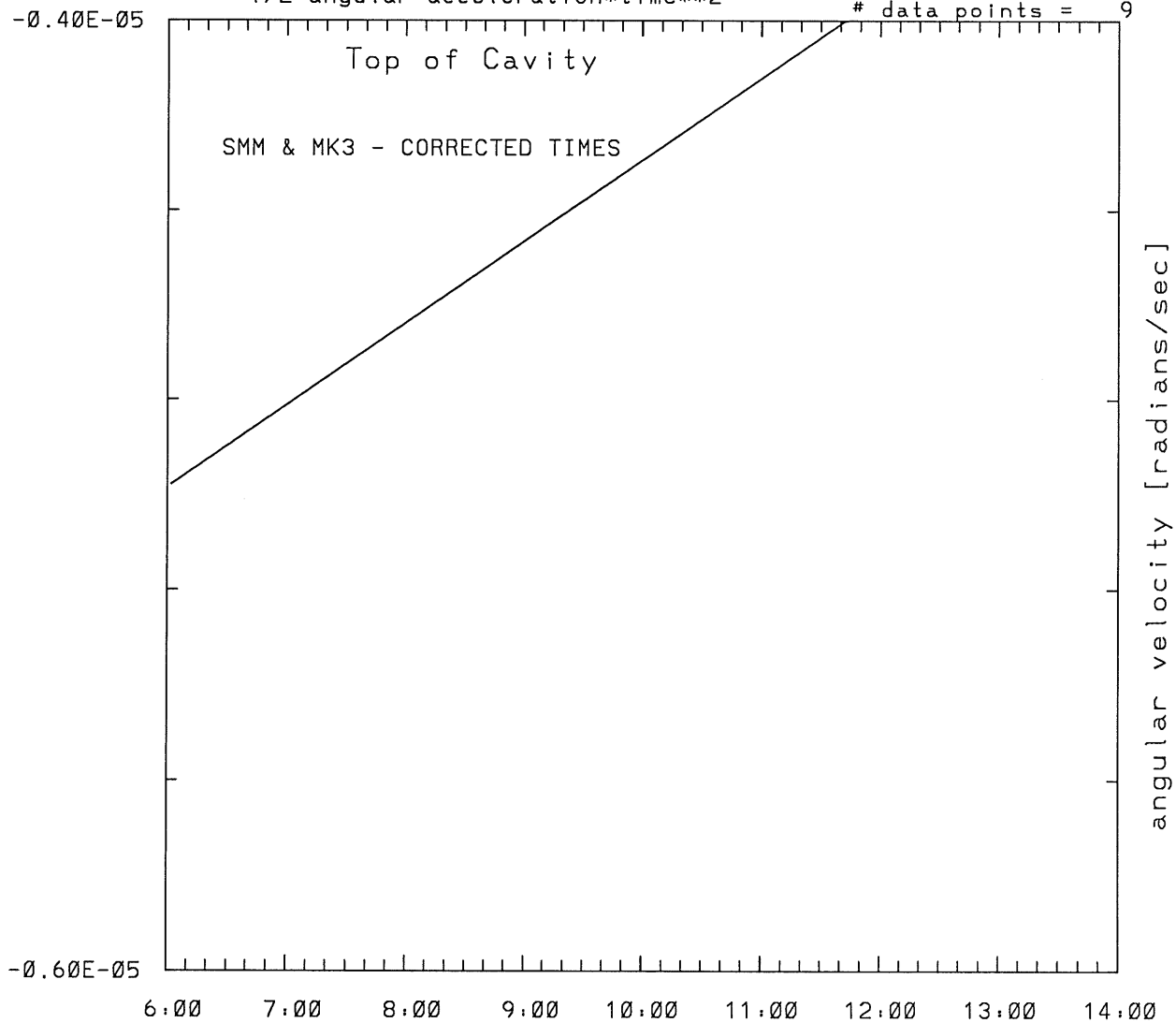
DOY 7 tstart=DOY 7 0:24 +/- 33.7 [min.]

radial acceleration=-.510E-03 km/sec**2

SMM C/P 1989 DOY 7 68 +/- 3 degrees

$$\text{angle} = \text{initial angle} + \text{angular velocity} * \text{time} + \frac{1}{2} \text{angular acceleration} * \text{time} ** 2$$

data points = 9



DOY 7

tstart=DOY 7 0:24 +/- 33.7 [min.]

angular acceleration=0.479E-10 +/-

0.410E-09 [rad/sec**2]

This is a 1 order run

INPUT:

year	doy	time	error in		error in		datatype
			radii	radius	angle	angle	
1989	7	6:37: 2	2.00 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	7:10: 4	2.10 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	7:26:33	2.10 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	8:10:40	2.15 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	8:27:10	2.20 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	8:35:25	2.35 +/-	0.15	65.0 +/-	0.5	SMM
1989	7	9: 0:10	2.30 +/-	0.20	70.0 +/-	0.5	SMM
1989	7	11:42:40	2.50 +/-	0.20	65.0 +/-	0.5	SMM
1989	7	13:16:18	2.70 +/-	0.20	65.0 +/-	0.5	SMM

Structure being measured:
Top of Cavity

OUTPUT:

START TIME:

Event began at t = 0 + -0.578E+03 +/- 0.356E+01 [minutes]
In more convenient units:
Event began at DOY 6 20:22 +/- 0.356E+01 [minutes]

Origin defined at DOY 7 6: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 20. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.197E+01 +/- 0.301E-01 [solar radii]
c(2) = 0.168E-02 +/- 0.161E-03 [radii/min]
c(2) = 0.195E+02 +/- 0.187E+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)= 0.31257E-01 [radii] see Bevington pg. 114
error in c(2)= 0.14523E-03 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.4295E-05 +/- 0.1242E-05 [radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 71. +/- 1. [degrees]
a(2) = -0.148E-01 +/- 0.427E-02 [degrees/min]
a(2) = -0.429E-05 +/- 0.124E-05 [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 6:37 = -6. km /sec

The RADIAL velocity at 6:37 = 20. km/sec

The TOTAL velocity at 6:37 = 20. km/sec

The TANGENTIAL velocity at 7:10 = -6. km /sec

The RADIAL velocity at 7:10 = 20. km/sec

The TOTAL velocity at 7:10 = 20. km/sec

The TANGENTIAL velocity at 7:26 = -6. km /sec

The RADIAL velocity at 7:26 = 20. km/sec

The TOTAL velocity at 7:26 = 20. km/sec

The TANGENTIAL velocity at 8:10 = -6. km /sec

The RADIAL velocity at 8:10 = 20. km/sec

The TOTAL velocity at 8:10 = 21. km/sec

The TANGENTIAL velocity at 8:27 = -7. km /sec

The RADIAL velocity at 8:27 = 20. km/sec

The TOTAL velocity at 8:27 = 21. km/sec

The TANGENTIAL velocity at 8:35 = -7. km /sec

The RADIAL velocity at 8:35 = 20. km/sec

The TOTAL velocity at 8:35 = 21. km/sec

The TANGENTIAL velocity at 9: 0 = -7. km /sec

The RADIAL velocity at 9: 0 = 20. km/sec

The TOTAL velocity at 9: 0 = 21. km/sec

The TANGENTIAL velocity at 11:42 = -7. km /sec

The RADIAL velocity at 11:42 = 20. km/sec

The TOTAL velocity at 11:42 = 21. km/sec

The TANGENTIAL velocity at 13:16 = -8. km /sec

The RADIAL velocity at 13:16 = 20. km/sec

The TOTAL velocity at 13:16 = 21. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.22

Standard Deviation in start time measurement = 0.124E+03

Error in time = 0.84724E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.278E-02

Reduced Chi Squared = 0.166E-01

Chi Squared = 0.116E+00

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.974E+00

The probability that no LINEAR correlation exists between the variables = 0.89021

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	7	6:37: 2	2.00 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	7:10: 4	2.10 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	7:26:33	2.10 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	8:10:40	2.15 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	8:27:10	2.20 +/-	0.15	70.0 +/-	0.5	SMM
1989	7	8:35:25	2.35 +/-	0.15	65.0 +/-	0.5	SMM
1989	7	9: 0:10	2.30 +/-	0.20	70.0 +/-	0.5	SMM
1989	7	11:42:40	2.50 +/-	0.20	65.0 +/-	0.5	SMM
1989	7	13:16:18	2.70 +/-	0.20	65.0 +/-	0.5	SMM

Structure being measured:
Top of Cavity

OUTPUT:

START TIME:

Event began at t = 0 + -0.338E+03 +/- 0.337E+02 [minutes]
In more convenient units:
Event began at DOY 7 0:24 +/- 0.337E+02 [minutes]

Origin defined at DOY 7 6: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.510E-03 +/- 0.532E-03 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.193E+01 +/- 0.573E-01 [solar radii]
c(2) = 0.229E-02 +/- 0.657E-03 [radii/min]
c(2) = 0.266E+02 +/- 0.762E+01 [km/sec]
c(3) = -0.132E-05 +/- 0.137E-05 [radii/min**2]
c(3) = -0.510E-03 +/- 0.532E-03 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.61961E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.43978E-02 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.68152E-03 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.48359E-04 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.13866E-05 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.12870E-06 [radii/min**] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= 0.4790E-10 +/- 0.4101E-09[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 71. +/- 2. [degrees]
a(2) = -0.171E-01 +/- 0.208E-01 [degrees/min]

a(2) = -0.498E-05 +/- 0.605E-05 [rad/sec]
a(3) = 0.494E-05 +/- 0.423E-04 [degrees/min**2]
a(3) = 0.479E-10 +/- 0.410E-09 [rad/sec**2]

THE TANGENTIAL, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 6:37 = -7. km /sec
The RADIAL velocity at 6:37 = 25. km/sec

The TOTAL velocity at 6:37 = 26. km/sec

The TANGENTIAL velocity at 7:10 = -7. km /sec
The RADIAL velocity at 7:10 = 24. km/sec

The TOTAL velocity at 7:10 = 25. km/sec

The TANGENTIAL velocity at 7:26 = -7. km /sec
The RADIAL velocity at 7:26 = 24. km/sec

The TOTAL velocity at 7:26 = 25. km/sec

The TANGENTIAL velocity at 8:10 = -7. km /sec
The RADIAL velocity at 8:10 = 23. km/sec

The TOTAL velocity at 8:10 = 24. km/sec

The TANGENTIAL velocity at 8:27 = -7. km /sec
The RADIAL velocity at 8:27 = 22. km/sec

The TOTAL velocity at 8:27 = 23. km/sec

The TANGENTIAL velocity at 8:35 = -7. km /sec
The RADIAL velocity at 8:35 = 22. km/sec

The TOTAL velocity at 8:35 = 23. km/sec

The TANGENTIAL velocity at 9: 0 = -7. km /sec
The RADIAL velocity at 9: 0 = 21. km/sec

The TOTAL velocity at 9: 0 = 22. km/sec

The TANGENTIAL velocity at 11:42 = -7. km /sec
The RADIAL velocity at 11:42 = 16. km/sec

The TOTAL velocity at 11:42 = 18. km/sec

The TANGENTIAL velocity at 13:16 = -7. km /sec
The RADIAL velocity at 13:16 = 13. km/sec

The TOTAL velocity at 13:16 = 15. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.22
Standard Deviation in start time measurement = 0.124E+03
Value of reduced Chi Squared returned from nllst2 = 0.281E-02
Reduced Chi Squared = 0.183E-01
Chi Squared = 0.110E+00
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 = 0.8727E+00

The correlation between the data and the time**2 term = 0.8043E+00

The correlation between the data and the complete equation of motion = 0.9431E+00

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