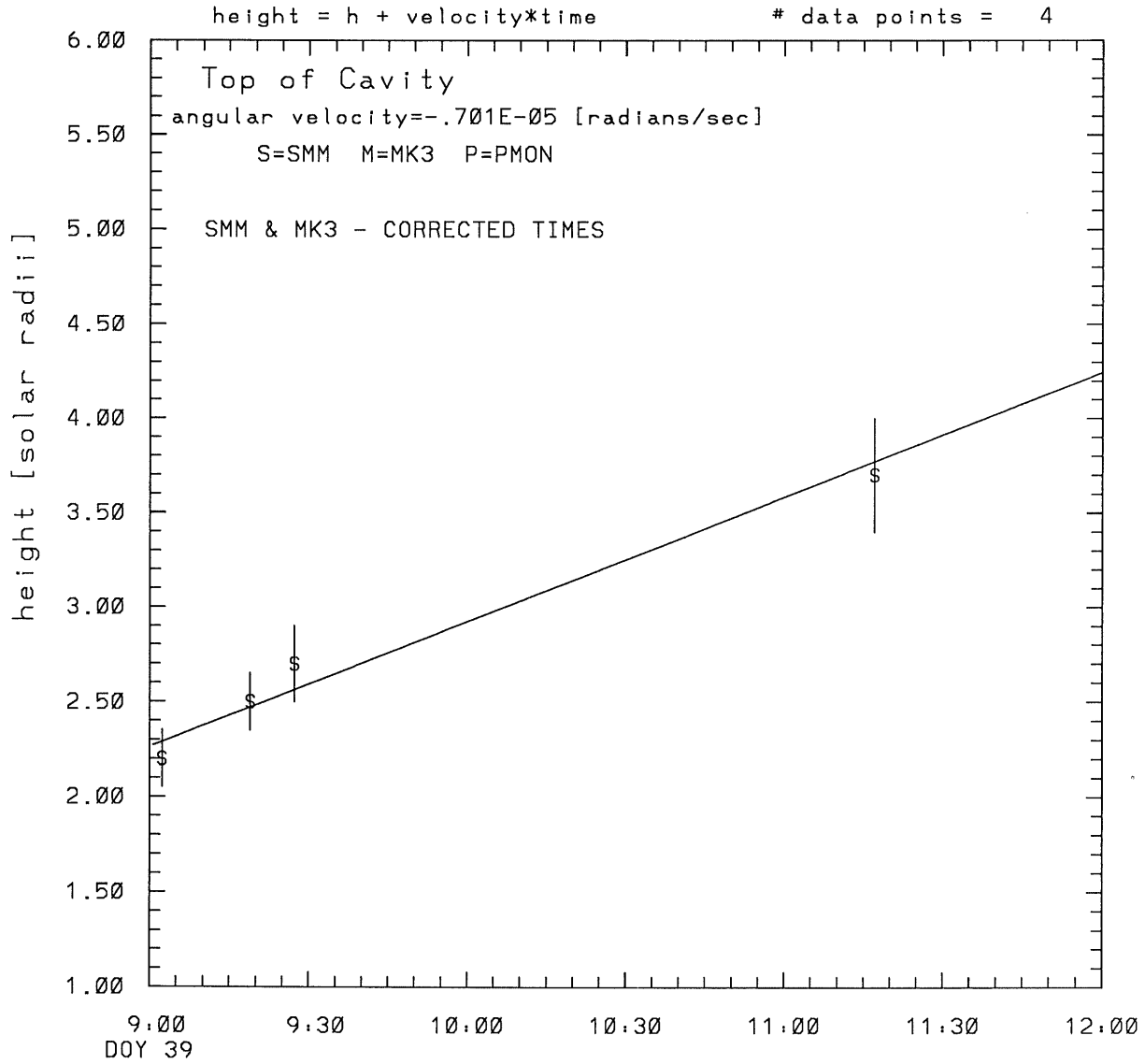
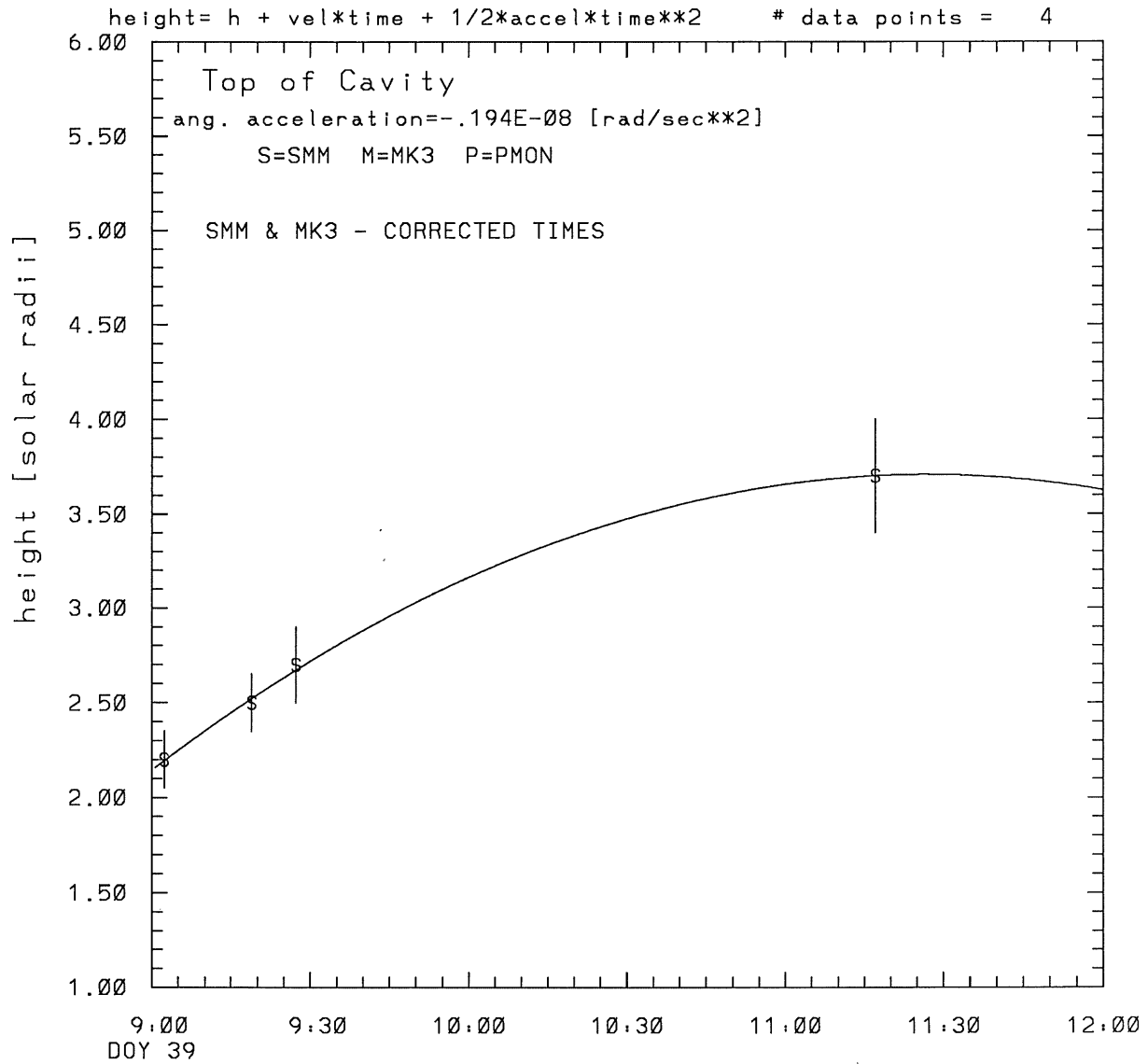


SMM C/P 1989 DOY 39 234 +/- 2 degrees



tstart=DOY 39 7: 7 +/- 4.8 [min.]  
radial velocity= 128. +/- 16. [km/sec]

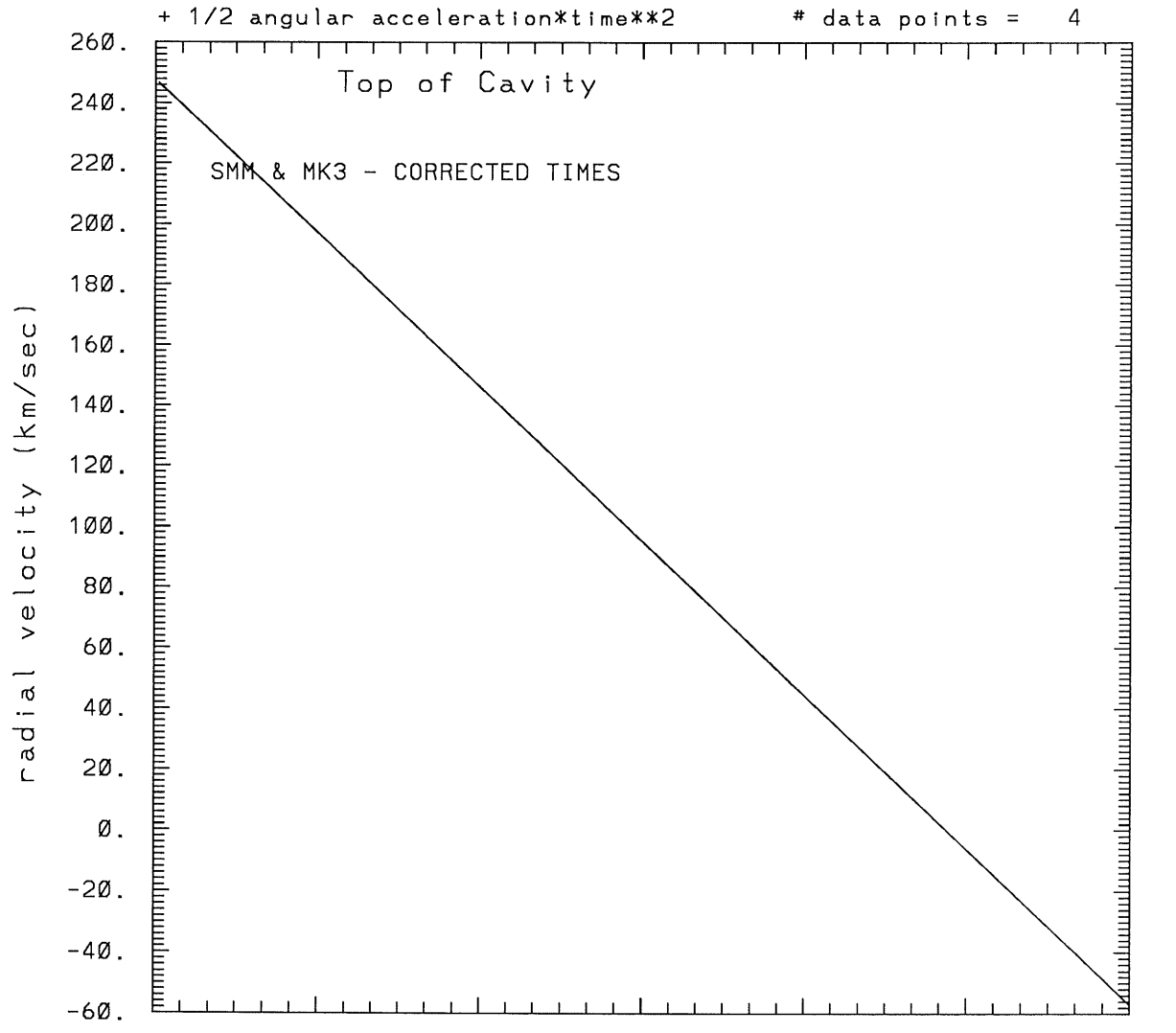
SMM C/P 1989 DOY 39 234 +/- 2 degrees



tstart=DOY 39 8:14 +/- 5.6 [min.]

radial acceleration =  $-0.0282 +/- 0.0044$  [km/sec\*\*2]

SMM C/P 1989 DOY 39 234 +/- 2 degrees



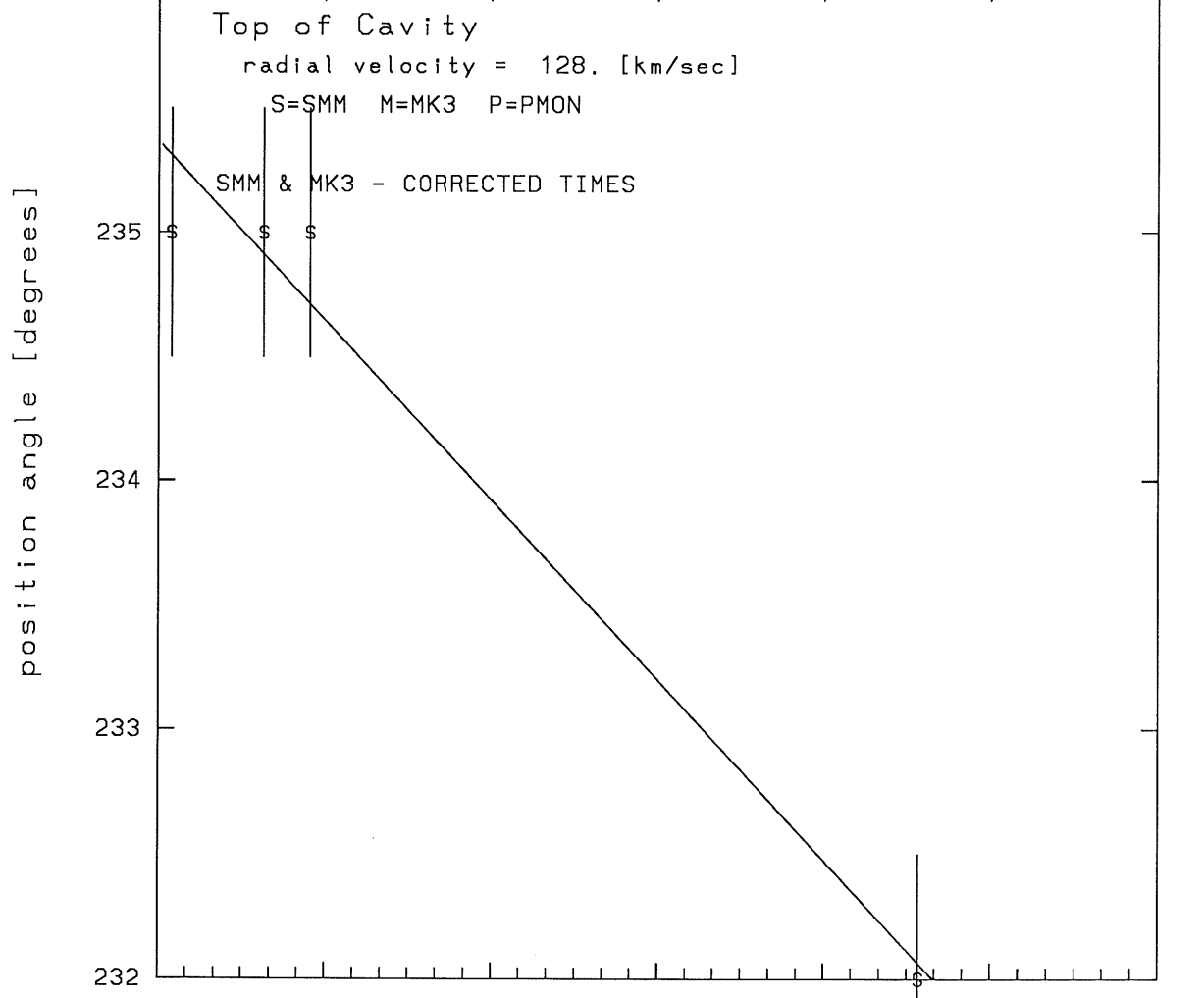
DOY 39

tstart=DOY 39 8:14 +/- 5.6 [min.]

radial acceleration=-.282E-01 km/sec\*\*2

SMM C/P 1989 DOY 39 234 +/- 2 degrees

angle = initial angle + angular velocity \* time # data points = 4

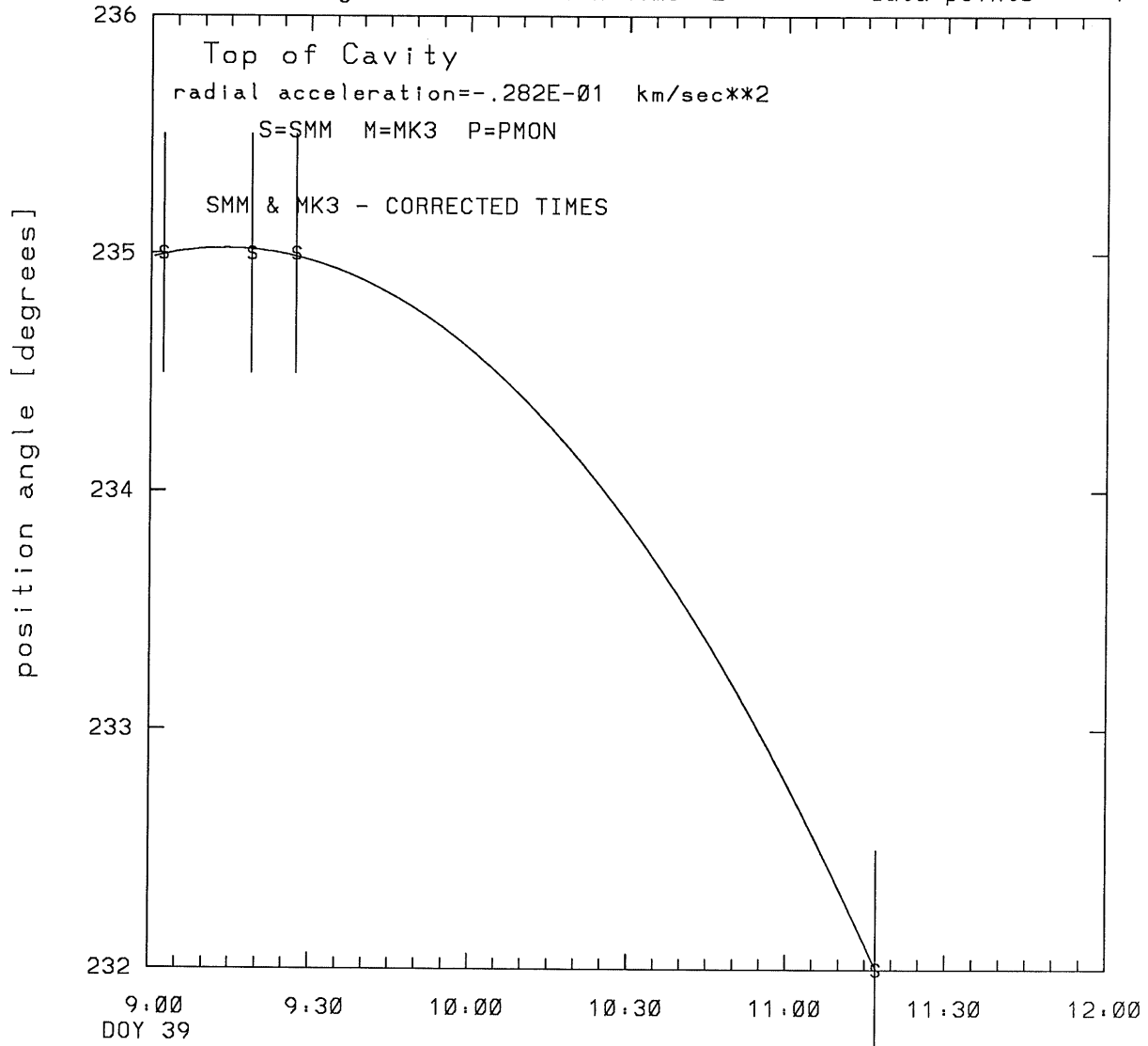


angular velocity =  $-.701E-05 \pm 0.693E-06$  [rad/sec]

SMM C/P 1989 DOY 39 234 +/- 2 degrees

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

# data points = 4

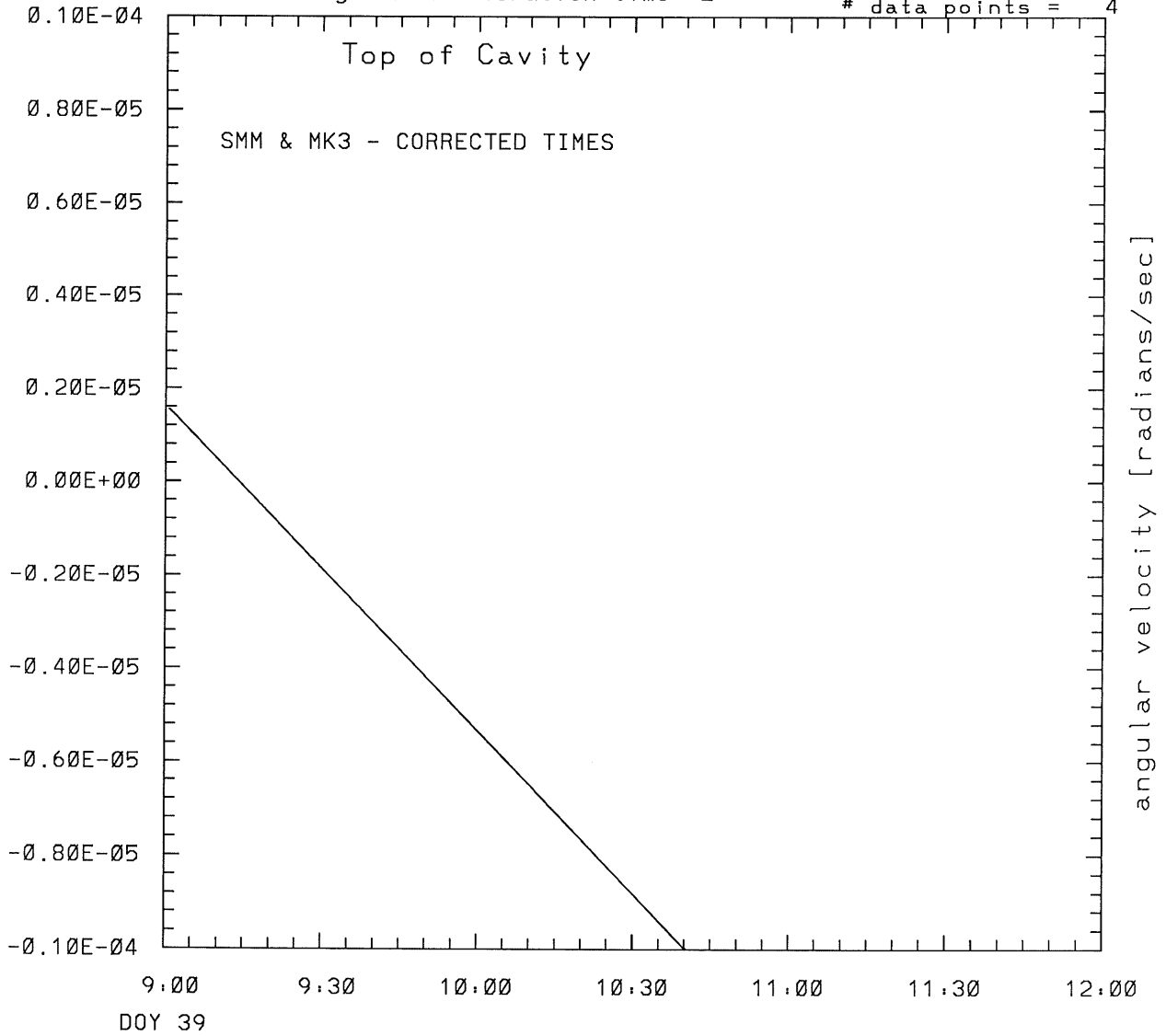


angular acceleration =  $-.194E-08$  +/-  $0.692E-10$  [rad/sec\*\*2]

SMM C/P 1989 DOY 39 234 +/- 2 degrees

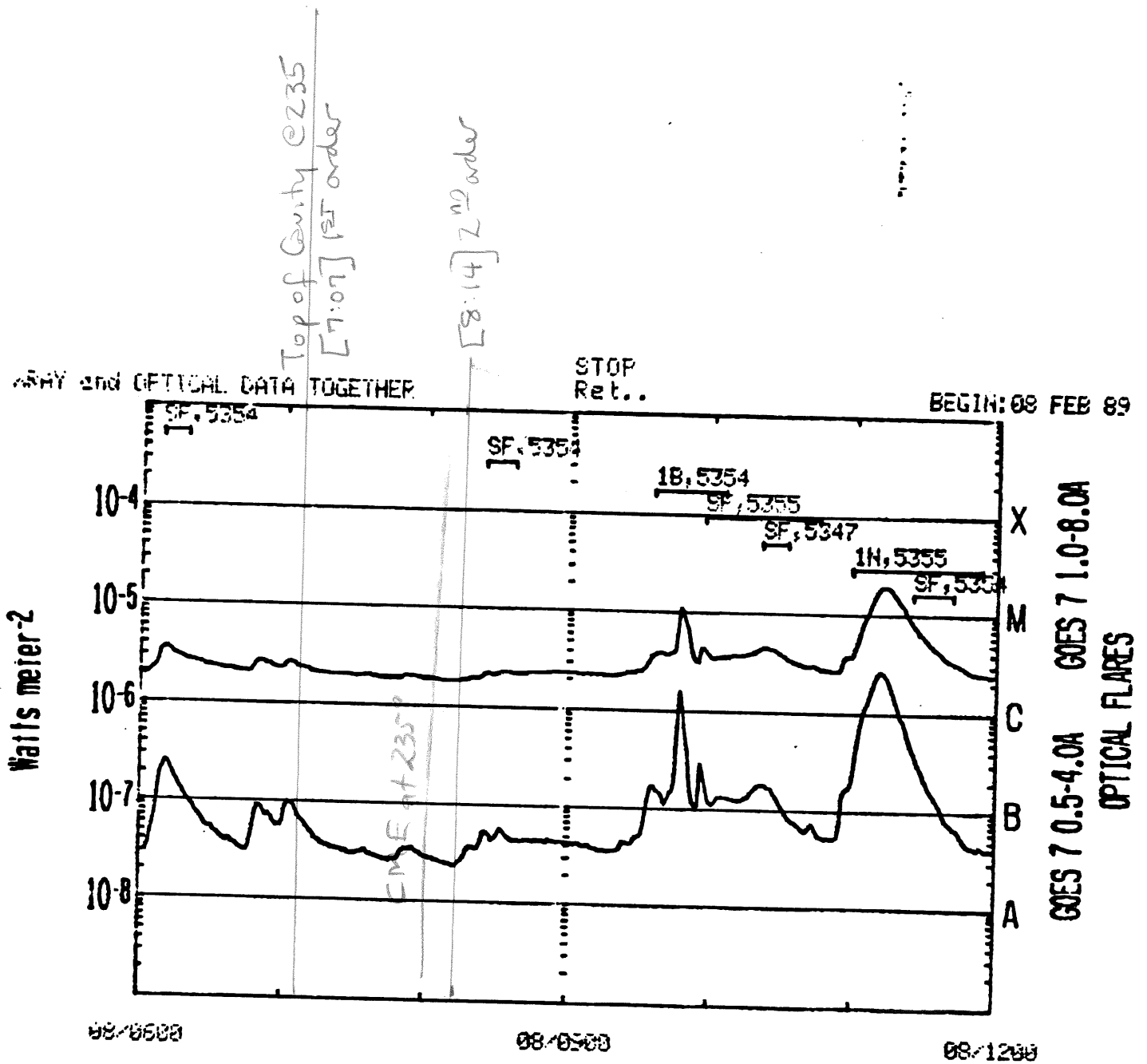
$$\text{angle} = \text{initial angle} + \text{angular velocity} * \text{time} + \frac{1}{2} \text{angular acceleration} * \text{time} ** 2$$

# data points = 4



angular acceleration =  $-.194E-08$  +/-  $0.692E-10$  [rad/sec\*\*2]

1989 Day 39



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

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

SAA's  
NIGHT  
RHH: 1954UT  
13 FEB 89

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

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

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	39	9: 2:21	2.20 +/-	0.15	235.0 +/-	0.5	SMM
1989	39	9:18:56	2.50 +/-	0.15	235.0 +/-	0.5	SMM
1989	39	9:27:16	2.70 +/-	0.20	235.0 +/-	0.5	SMM
1989	39	11:17: 7	3.70 +/-	0.30	232.0 +/-	0.5	SMM

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

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

START TIME:

Event began at t = 0 + -0.115E+03 +/- 0.483E+01 [minutes]

In more convenient units:

Event began at DOY 39 7: 7 +/- 0.483E+01 [minutes]

Origin defined at DOY 39 9: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 128. +/- 16. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.226E+01 +/- 0.601E-01 [solar radii]  
c(2) = 0.110E-01 +/- 0.136E-02 [radii/min]  
c(2) = 0.128E+03 +/- 0.158E+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)= 0.84819E-01 [radii] see Bevington pg. 114

error in c(2)= 0.12023E-02 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.7010E-05 +/- 0.6932E-06[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 235. +/- 0. [degrees]  
a(2) = -0.241E-01 +/- 0.238E-02 [degrees/min]  
a(2) = -0.701E-05 +/- 0.693E-06 [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 9: 2 = -11. km /sec

The RADIAL velocity at 9: 2 = 128. km/sec

The TOTAL velocity at 9: 2 = 128. km/sec



The TANGENTIAL velocity at 9:18 = -12. km /sec

The RADIAL velocity at 9:18 = 128. km/sec

The TOTAL velocity at 9:18 = 128. km/sec

The TANGENTIAL velocity at 9:27 = -13. km /sec

The RADIAL velocity at 9:27 = 128. km/sec

The TOTAL velocity at 9:27 = 128. km/sec

The TANGENTIAL velocity at 11:17 = -18. km /sec

The RADIAL velocity at 11:17 = 128. km/sec

The TOTAL velocity at 11:17 = 129. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.65

Standard Deviation in start time measurement = 0.531E+02

Error in time = 0.16418E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.975E-02

Reduced Chi Squared = 0.433E-01

Chi Squared = 0.865E-01

The probability for exceeding chi square = 0.990E+00

The correlation coefficient = 0.988E+00

The probability that no LINEAR correlation exists between the variables = 0.11681

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	39	9: 2:21	2.20 +/-	0.15	235.0 +/-	0.5	SMM
1989	39	9:18:56	2.50 +/-	0.15	235.0 +/-	0.5	SMM
1989	39	9:27:16	2.70 +/-	0.20	235.0 +/-	0.5	SMM
1989	39	11:17: 7	3.70 +/-	0.30	232.0 +/-	0.5	SMM

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

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

START TIME:

Event began at t = 0 + -0.462E+02 +/- 0.558E+01 [minutes]  
In more convenient units:  
Event began at DOY 39 8:14 +/- 0.558E+01 [minutes]

Origin defined at DOY 39 9: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.282E-01 +/- 0.444E-02 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.214E+01 +/- 0.246E-01 [solar radii]  
c(2) = 0.214E-01 +/- 0.167E-02 [radii/min]  
c(2) = 0.248E+03 +/- 0.194E+02 [km/sec]  
c(3) = -0.730E-04 +/- 0.115E-04 [radii/min\*\*2]  
c(3) = -0.282E-01 +/- 0.444E-02 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.39994E-01 [radii] Bevington pg 154 (8-30)  
Exact error in c(1) = 0.77154E-02 [radii] Bevington pg 154 (8-28)  
Approximate error in c(2) = 0.24829E-02 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.11206E-02 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.16519E-04 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.79266E-05 [radii/min\*\*] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION = -0.1935E-08 +/- 0.6920E-10 [radians/sec\*\*2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 235. +/- 0. [degrees]  
a(2) = 0.561E-02 +/- 0.107E-02 [degrees/min]  
a(2) = 0.163E-05 +/- 0.312E-06 [rad/sec]  
a(3) = -0.200E-03 +/- 0.714E-05 [degrees/min\*\*2]  
a(3) = -0.194E-08 +/- 0.692E-10 [rad/sec\*\*2]

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

The TANGENTIAL velocity at 9: 2 = 2. km /sec

The RADIAL velocity at 9: 2 = 244. km/sec

The TOTAL velocity at 9: 2 = 244. km/sec

The TANGENTIAL velocity at 9:18 = -1. km /sec

The RADIAL velocity at 9:18 = 216. km/sec

The TOTAL velocity at 9:18 = 216. km/sec

The TANGENTIAL velocity at 9:27 = -3. km /sec

The RADIAL velocity at 9:27 = 202. km/sec

The TOTAL velocity at 9:27 = 202. km/sec

The TANGENTIAL velocity at 11:17 = -37. km /sec

The RADIAL velocity at 11:17 = 16. km/sec

The TOTAL velocity at 11:17 = 40. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.65

Standard Deviation in start time measurement = 0.531E+02

Value of reduced Chi Squared returned from nllst2 = 0.690E-03

Reduced Chi Squared = 0.338E-02

Chi Squared = 0.338E-02

The probability for exceeding chi square = 0.979E+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 = 0.7773E+00

The correlation between the data and the time\*\*2 term = 0.7097E+00

The correlation between the data and the complete equation of motion = 0.9954E+00

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