SMM C/P  1989 DOY315  233 +/-  8 degrees

height = h + velocity*time          # data points =  5

Top of Cavity
angular velocity=-.669E-05 [radians/sec]
     S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

height [solar radii]

6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00

19:00   20:00   21:00   22:00   23:00   0:00   1:00   2:00   3:00
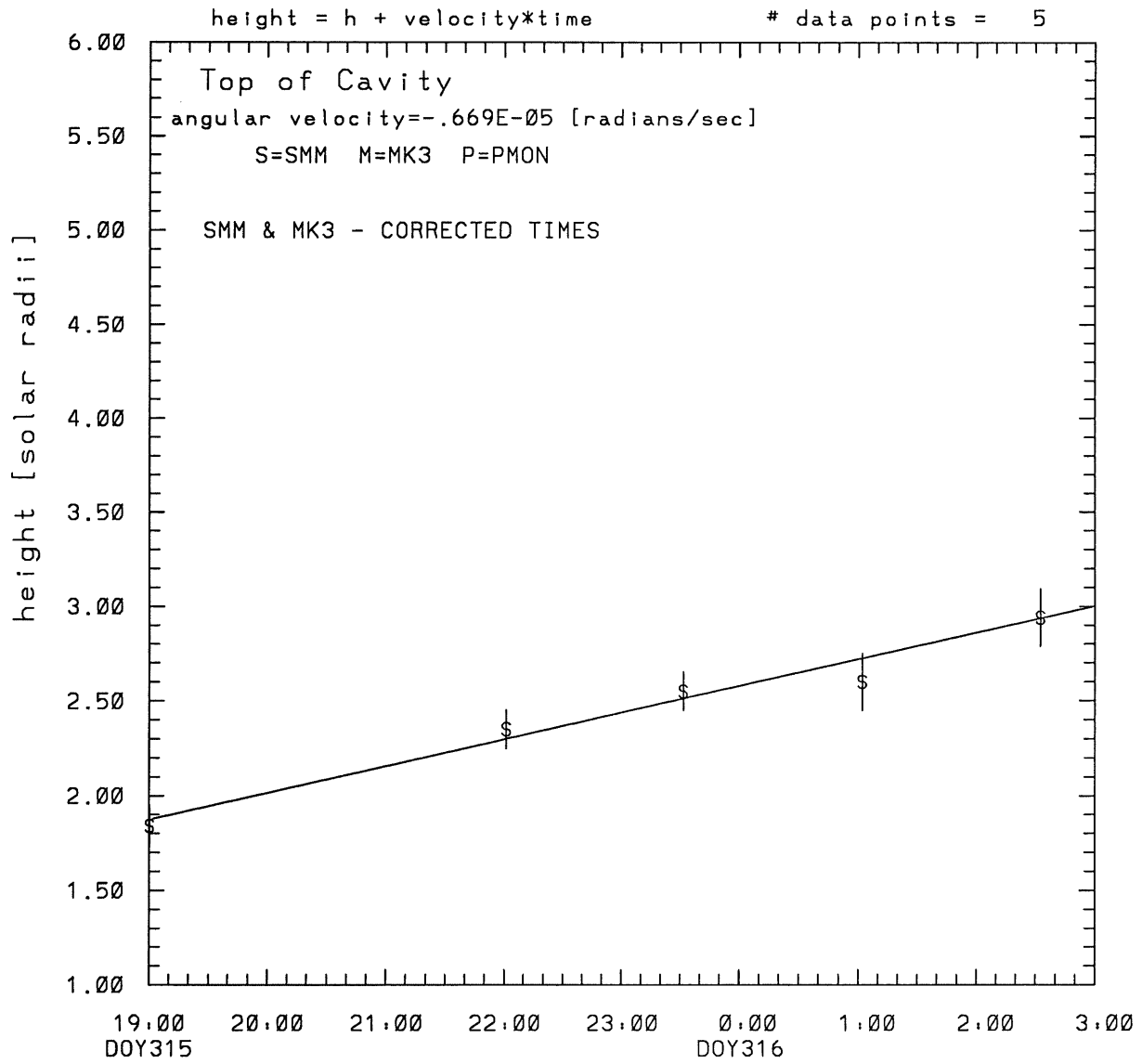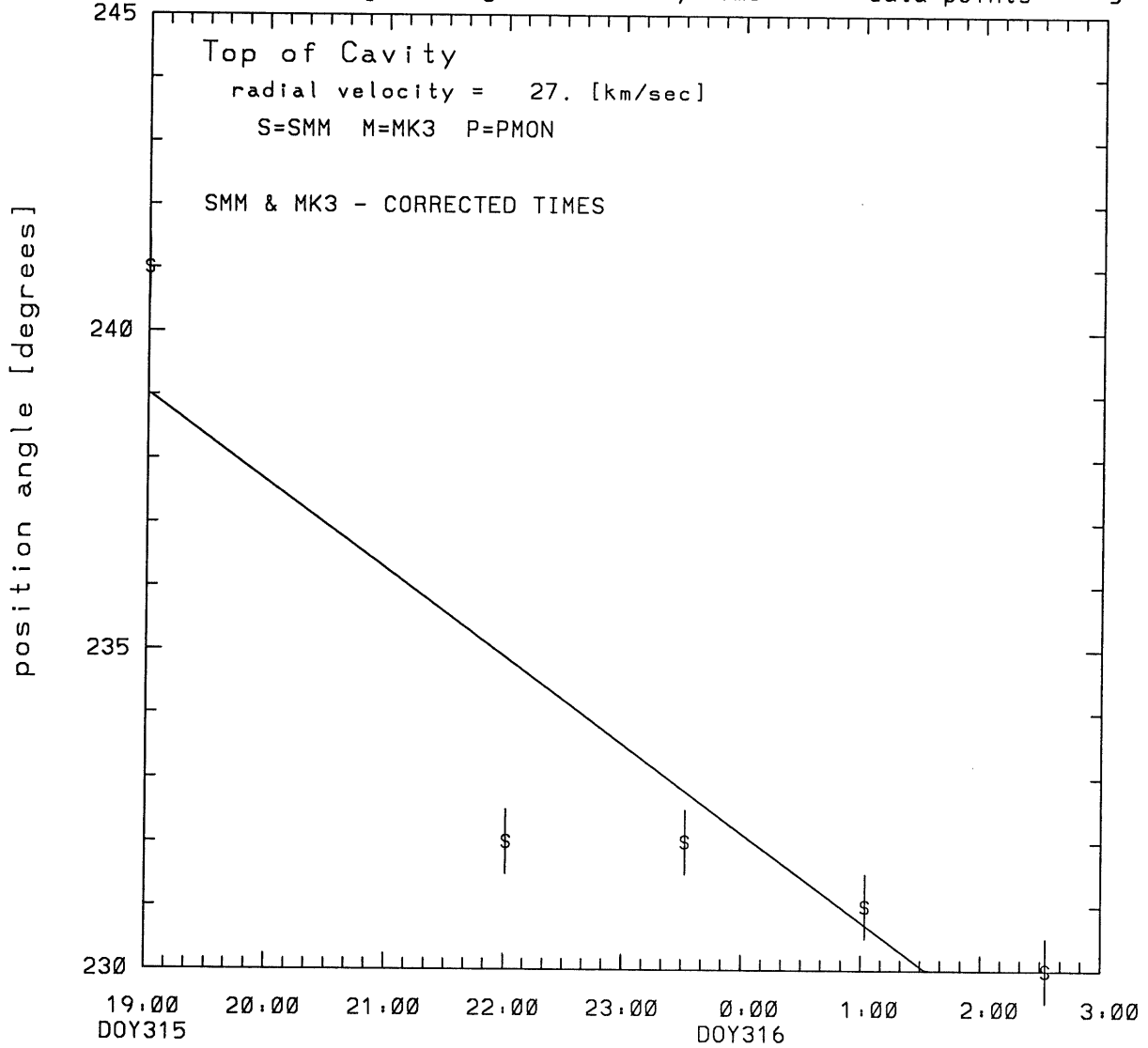DOY315                                    DOY316

tstart=DOY315 12:50 +/-      7.0 [min.]
radial velocity=   27. +/-   2. [km/sec]

# SMM C/P  1989 DOY315  233 +/-  8 degrees

angle= initial angle + angular velocity*time     # data points =   5



Top of Cavity
   radial velocity =   27. [km/sec]
      S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

tstart=DOY315 12:50 +/-     7.0 [min.]
angular velocity=-.669E-05 +/- 0.160E-05 [rad/sec]

SMM C/P  1989 DOY315  233 +/-  8 degrees

height= h + vel*time + 1/2*accel*time**2      # data points =    5



Top of Cavity
ang. acceleration=0.668E-09 [rad/sec**2]
       S=SMM   M=MK3   P=PMON

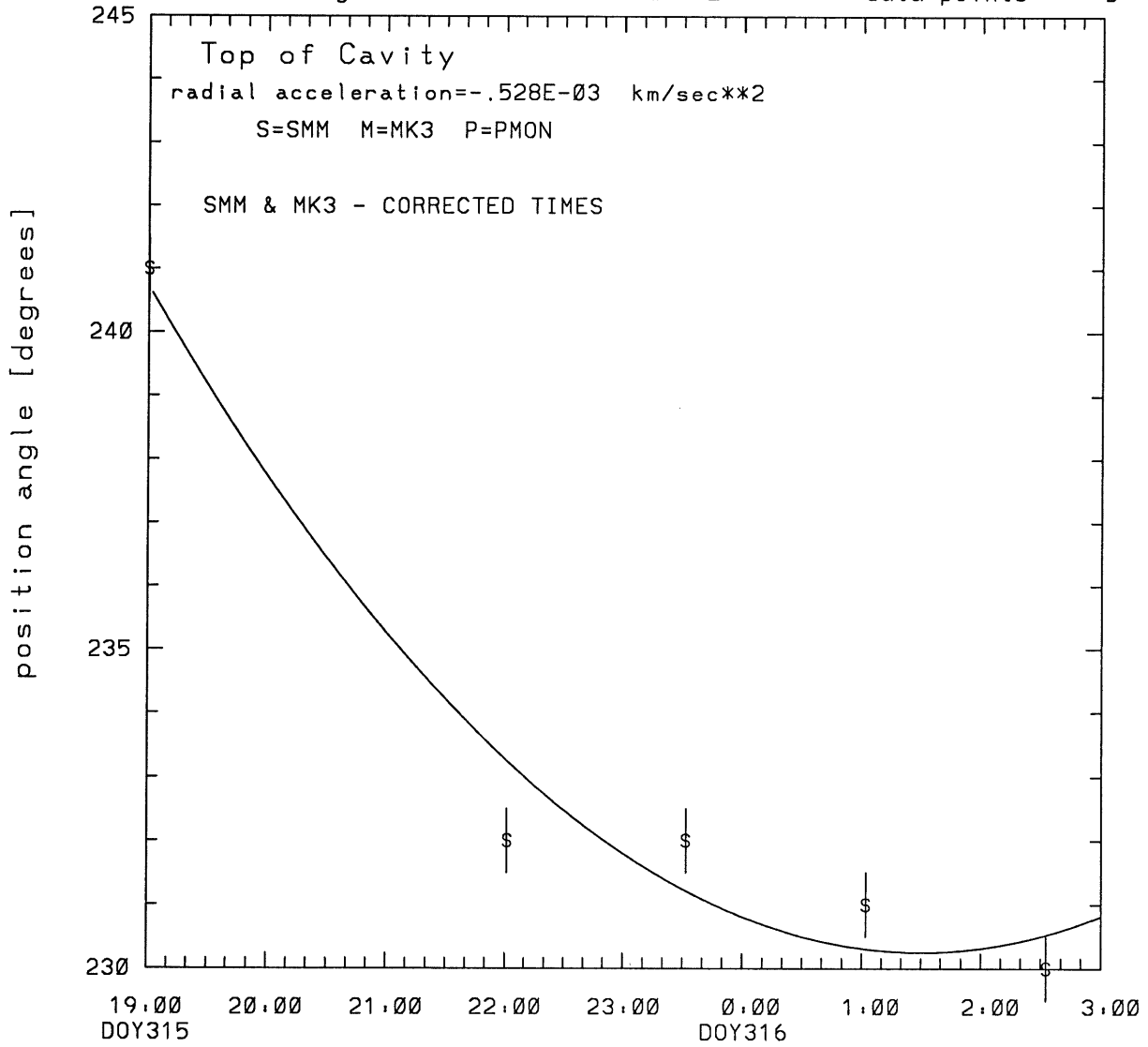SMM & MK3 - CORRECTED TIMES

height [solar radii]

tstart=DOY315 14:42 +/-      84.6 [min.]

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

SMM C/P  1989 DOY315  233 +/-  8 degrees

angle= initial angle + angular velocity*time
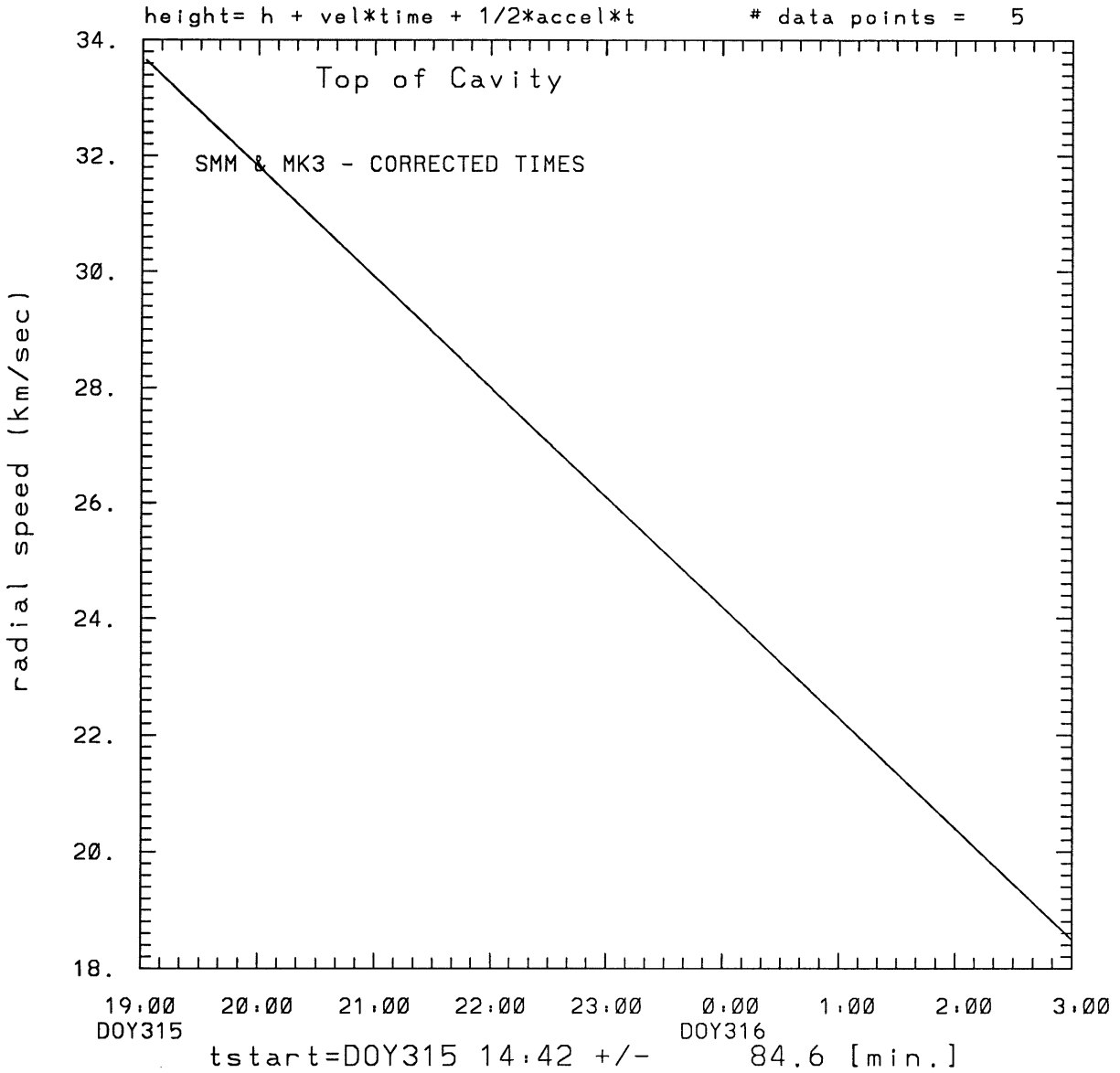       + 1/2 angular acceleration*time**2          # data points =    5

245

Top of Cavity

radial acceleration=-.528E-03  km/sec**2

S=SMM  M=MK3  P=PMON

SMM & MK3 - CORRECTED TIMES

240

position angle [degrees]

235

230

19:00   20:00   21:00   22:00   23:00   0:00   1:00   2:00   3:00
DOY315                                   DOY316

tstart=DOY315 14:42 +/-       84.6 [min.]
angular acceleration=0.668E-09 +/-0.196E-09 [rad/sec**2]

SMM C/P   1989 DOY315   233 +/-   8 degrees

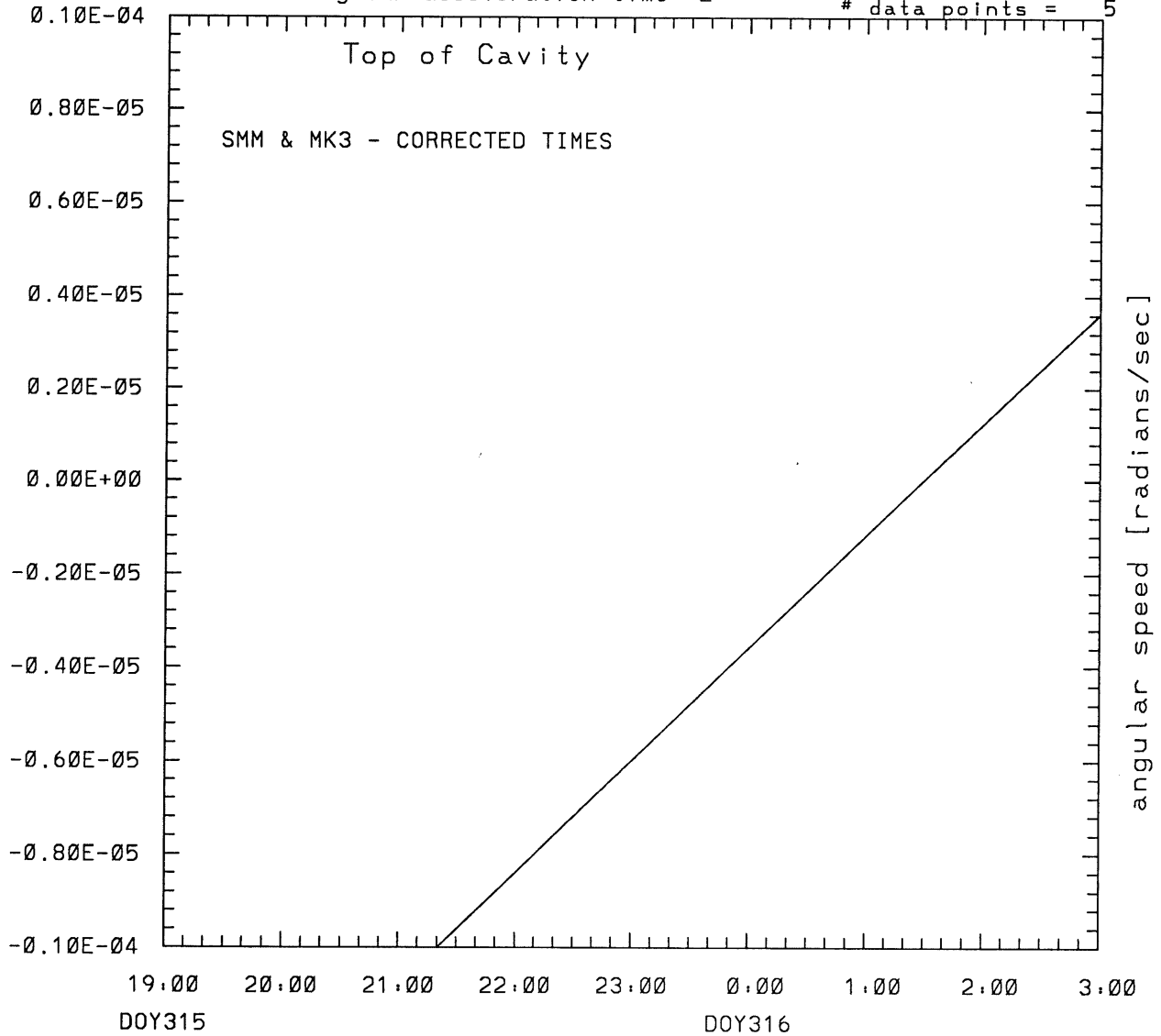height= h + vel*time + 1/2*accel*t        # data points =    5

Top of Cavity

SMM & MK3 - CORRECTED TIMES

radial speed (km/sec)

34.
32.
30.
28.
26.
24.
22.
20.
18.

19:00   20:00   21:00   22:00   23:00   0:00   1:00   2:00   3:00
DOY315                                    DOY316

tstart=DOY315 14:42 +/-        84.6 [min.]

radial acceleration=-.528E-03  km/sec**2

# SMM C/P  1989 DOY315  233 +/-  8 degrees

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

# data points =    5

Top of Cavity

SMM & MK3 - CORRECTED TIMES

angular speed [radians/sec]

| | |
|---|---|
| Ø.1ØE-Ø4 | |
| Ø.8ØE-Ø5 | |
| Ø.6ØE-Ø5 | |
| Ø.4ØE-Ø5 | |
| Ø.2ØE-Ø5 | |
| Ø.ØØE+ØØ | |
| -Ø.2ØE-Ø5 | |
| -Ø.4ØE-Ø5 | |
| -Ø.6ØE-Ø5 | |
| -Ø.8ØE-Ø5 | |
| -Ø.1ØE-Ø4 | |

19:ØØ   2Ø:ØØ   21:ØØ   22:ØØ   23:ØØ   Ø:ØØ   1:ØØ   2:ØØ   3:ØØ

DOY315                                    DOY316

tstart=DOY315 14:42 +/-      84.6 [min.]
angular acceleration=Ø.668E-Ø9 +/-
Ø.196E-Ø9 [rad/sec**2]

```
**********************
 This is a 1 order run
**********************

*******
 INPUT:
*******

                              error in        error in
year doy     time     radii   radius    angle    angle    datatype
1989 315  19: 0:18    1.84 +/- 0.10     241.0 +/-  0.5      SMM
1989 315  22: 1:12    2.35 +/- 0.10     232.0 +/-  0.5      SMM
1989 315  23:31:39    2.55 +/- 0.10     232.0 +/-  0.5      SMM
1989 316   1: 2: 6    2.60 +/- 0.15     231.0 +/-  0.5      SMM
1989 316   2:32:34    2.94 +/- 0.15     230.0 +/-  0.5      SMM


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

********
 OUTPUT:
********

START TIME:

 Event began at t = 0 + -0.372E+03 +/-  0.705E+01 [minutes]
 In more convenient units:
 Event began at DOY 315 12:50 +/-  0.705E+01 [minutes]

 Origin defined at DOY315 19: 0

RADIAL INFORMATION:

RADIAL VELOCITY =    27. +/-      2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =     0.187E+01 +/-     0.483E-01 [solar radii]
 c(2) =     0.235E-02 +/-     0.188E-03 [radii/min]
 c(2) =     0.273E+02 +/-     0.219E+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)=  0.71017E-01 [radii] see Bevington pg. 114
                error in c(2)=  0.23871E-03 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.6693E-05 +/-   0.1603E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 239. +/-    2. [degrees]
 a(2) =   -0.230E-01 +/-     0.551E-02 [degrees/min]
 a(2) =   -0.669E-05 +/-     0.160E-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 speed at 19: 0 = -0.856E+01 km/sec
The RADIAL speed at 19: 0 =    27. km/sec
```

The TOTAL speed at 19: 0 =   29. km/sec

The TANGENTIAL speed at 22: 1 = -0.109E+02 km/sec
The RADIAL speed at 22: 1 =   27. km/sec

The TOTAL speed at 22: 1 =   29. km/sec

The TANGENTIAL speed at 23:31 = -0.119E+02 km/sec
The RADIAL speed at 23:31 =   27. km/sec

The TOTAL speed at 23:31 =   30. km/sec

The TANGENTIAL speed at  1: 2 = -0.121E+02 km/sec
The RADIAL speed at  1: 2 =   27. km/sec

The TOTAL speed at  1: 2 =   30. km/sec

The TANGENTIAL speed at  2:32 = -0.137E+02 km/sec
The RADIAL speed at  2:32 =   27. km/sec

The TOTAL speed at  2:32 =   30. km/sec


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

 Fit is ok [ier=1]

 Standard Deviation in the height =  0.40
 Standard Deviation in start time measurement =    0.156E+03
 Error in time =         0.61231E+02 using best fit method
 See Taylor Error Analysis [Univ of Colorado] pg.78

 Value of reduced Chi Squared returned from nllst2 = 0.388E-02
 Reduced Chi Squared = 0.242E-01
 Chi Squared = 0.727E-01
 The probability for exceeding chi square = 0.100E+01

 The correlation coefficient =    0.985E+00
 The probability that no LINEAR correlation exists between the variables =   0.2178]
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

```
***********************
 This is a 2 order run
***********************

*******
 INPUT:
*******

                                 error in          error in
year doy      time    radii   radius      angle   angle    datatype
1989 315   19: 0:18   1.84 +/- 0.10    241.0 +/-  0.5      SMM
1989 315   22: 1:12   2.35 +/- 0.10    232.0 +/-  0.5      SMM
1989 315   23:31:39   2.55 +/- 0.10    232.0 +/-  0.5      SMM
1989 316    1: 2: 6   2.60 +/- 0.15    231.0 +/-  0.5      SMM
1989 316    2:32:34   2.94 +/- 0.15    230.0 +/-  0.5      SMM


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

********
 OUTPUT:
********

START TIME:

 Event began at t = 0 + -0.260E+03 +/-  0.846E+02 [minutes]
 In more convenient units:
 Event began at DOY 315 14:42 +/-  0.846E+02 [minutes]

 Origin defined at DOY315 19: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.528E-03 +/-  0.481E-03 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =     0.185E+01 +/-     0.531E-01 [solar radii]
 c(2) =     0.291E-02 +/-     0.539E-03 [radii/min]
 c(2) =     0.337E+02 +/-     0.626E+01 [km/sec]
 c(3) =    -0.137E-05 +/-     0.125E-05 [radii/min**2]
 c(3) =    -0.528E-03 +/-     0.481E-03 [km/sec**2]

 The computed ERRORS in coefficients [BEVINGTON] are:

         Approximate error in c(1) =  0.94894E-01 [radii] Bevington pg 154 (8-30)
               Exact error in c(1) =  0.55395E-02 [radii] Bevington pg 154 (8-28)
         Approximate error in c(2) =  0.90714E-03 [radii/min] Bevington pg 154 (8-30
               Exact error in c(2) =  0.13309E-03 [radii/min] Bevington pg 154 (8-28
         Approximate error in c(3) =  0.19394E-05 [radii/min**]  Bevington pg 154 (8·
               Exact error in c(3) =  0.44095E-06 [radii/min**]  Bevington pg 154 (8·

ANGULAR INFORMATION:

ANGULAR ACCELERATION=  0.6685E-09 +/-   0.1964E-09[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 241. +/-   1. [degrees]
 a(2) =    -0.537E-01 +/-     0.948E-02 [degrees/min]
 a(2) =    -0.156E-04 +/-     0.276E-05 [rad/sec]
 a(3) =     0.689E-04 +/-     0.203E-04 [degrees/min**2]
 a(3) =     0.668E-09 +/-     0.196E-09 [rad/sec**2]
```

THE TANGENTIAL, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:
The TANGENTIAL speed at 19: 0 = -0.200E+02 km/sec
The RADIAL speed at 19: 0 =   34. km/sec

The TOTAL speed at 19: 0 =   39. km/sec

The TANGENTIAL speed at 22: 1 = -0.137E+02 km/sec
The RADIAL speed at 22: 1 =   28. km/sec

The TOTAL speed at 22: 1 =   31. km/sec

The TANGENTIAL speed at 23:31 = -0.839E+01 km/sec
The RADIAL speed at 23:31 =   25. km/sec

The TOTAL speed at 23:31 =   26. km/sec

The TANGENTIAL speed at  1: 2 = -0.199E+01 km/sec
The RADIAL speed at  1: 2 =   22. km/sec

The TOTAL speed at  1: 2 =   22. km/sec

The TANGENTIAL speed at  2:32 =  0.516E+01 km/sec
The RADIAL speed at  2:32 =   19. km/sec

The TOTAL speed at  2:32 =   20. km/sec


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

 Fit is ok [ier=1]

 Standard Deviation in the height =  0.40
 Standard Deviation in start time measurement =    0.156E+03
 Value of reduced Chi Squared returned from nllst2 = 0.369E-02
 Reduced Chi Squared = 0.380E-01
 Chi Squared = 0.760E-01
 The probability for exceeding chi square = 0.996E+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  =   0.9789E+00
 The correlation between the data and the time**2 term =   0.8442E+00
 The correlation between the data and the complete equation of motion =   0.9879E+0(
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]