SMM C/P 1980 DOY115 254 +/- 1 degrees

height = h + velocity*time   # data points = 13

Top of Cavity
angular velocity=-.524E-06 [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

10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00
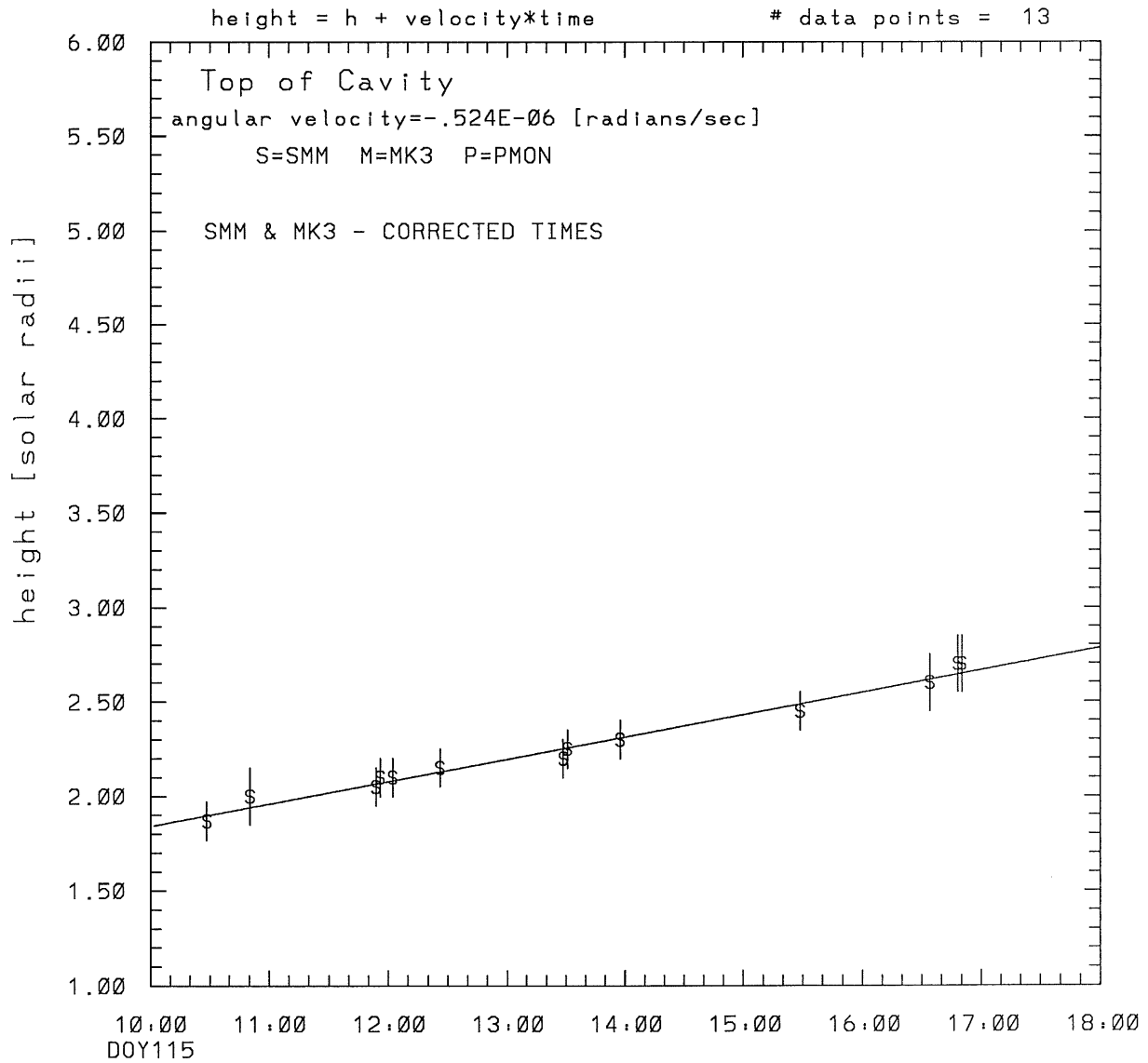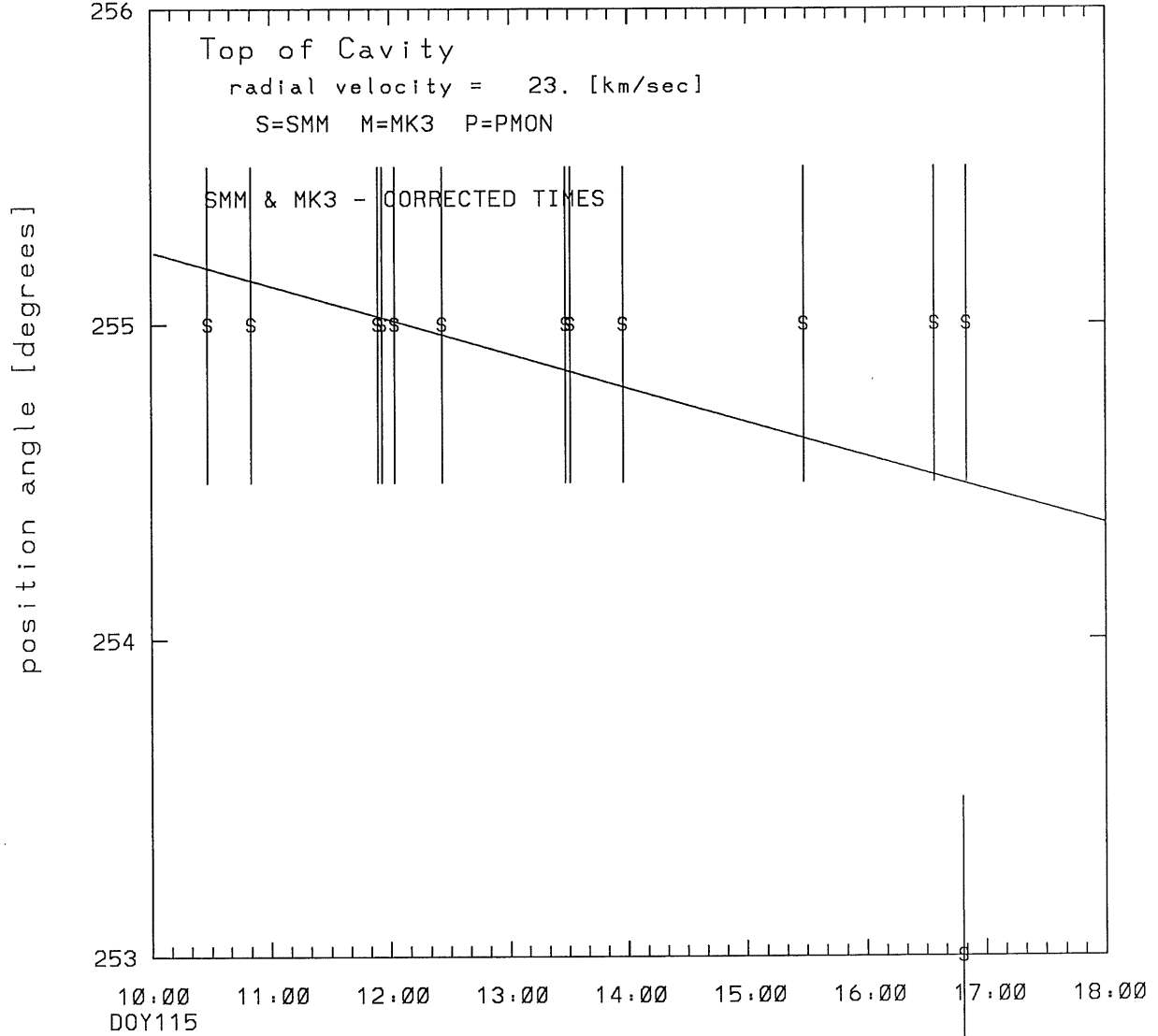DOY115

tstart=DOY115 2:52 +/-   3.7 [min.]
radial velocity=   23. +/-   1. [km/sec]

SMM C/P   1980 DOY115   254 +/-   1 degrees

angle= initial angle + angular velocity*time   # data points =   13

Top of Cavity
    radial velocity =   23. [km/sec]
      S=SMM   M=MK3   P=PMON

SMM & MK3 - CORRECTED TIMES

position angle [degrees]

256

255

254

253

10:00   11:00   12:00   13:00   14:00   15:00   16:00   17:00   18:00
DOY115

        tstart=DOY115   2:52 +/-   3.7 [min.]
angular velocity=-.524E-06 +/- 0.312E-06 [rad/sec]

SMM C/P 1980 DOY115 254 +/- 1 degrees

height= h + vel*time + 1/2*accel*time**2   # data points = 13

Top of Cavity
ang. acceleration=-.109E-09 [rad/sec**2]
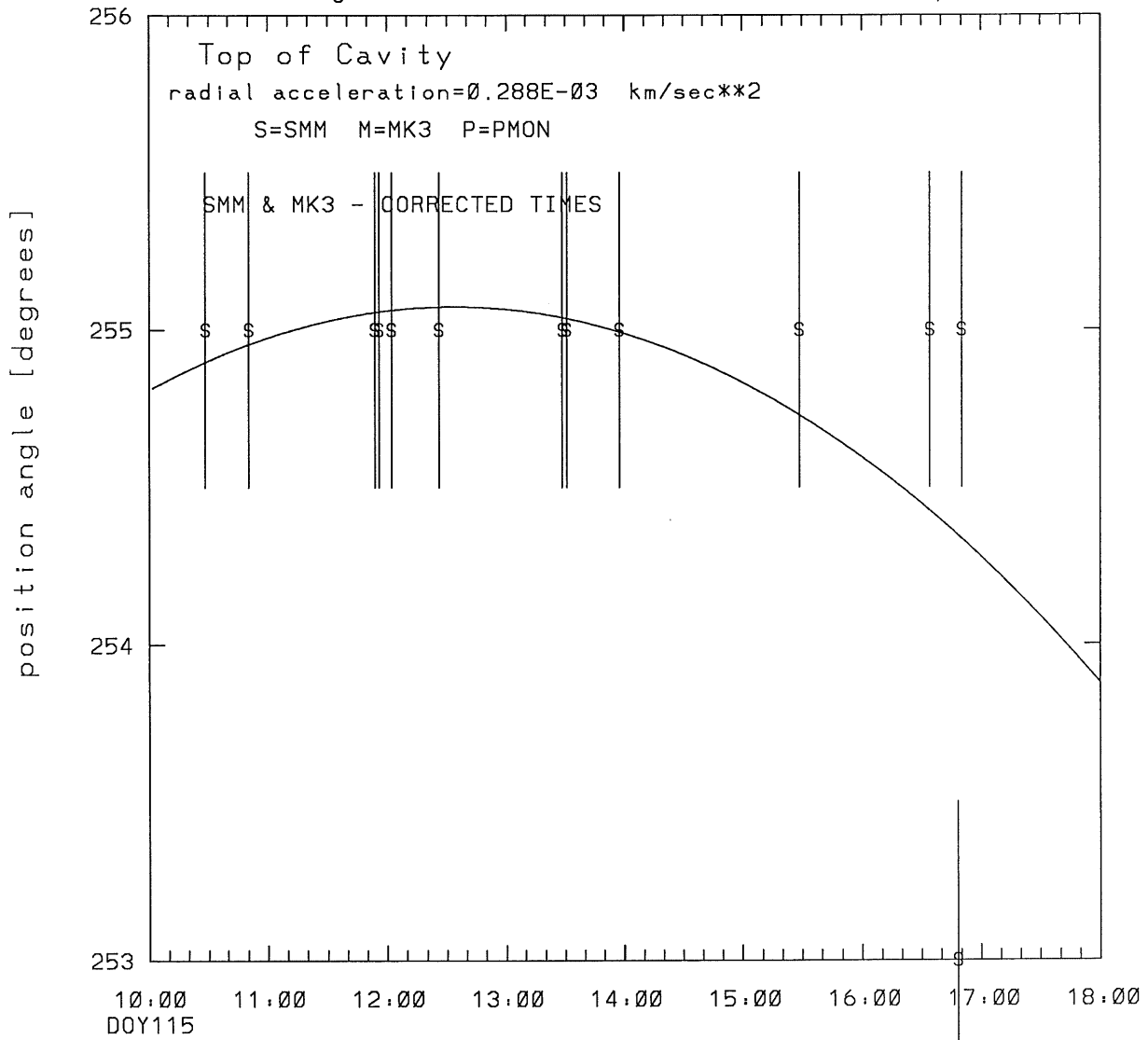S=SMM M=MK3 P=PMON

SMM & MK3 - CORRECTED TIMES
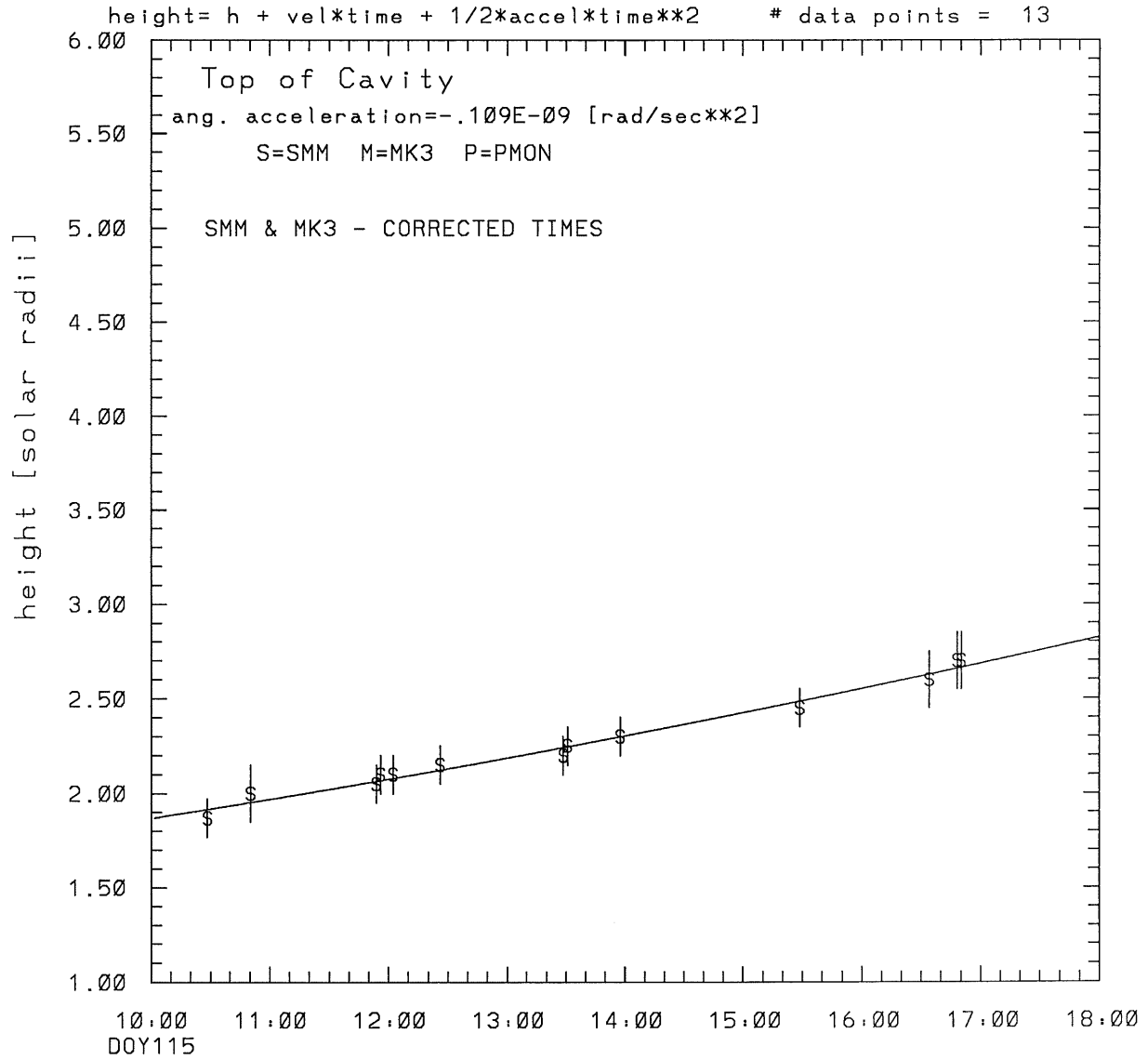
tstart=DOY114 18:48 +/-   179.9 [min.]

radial acceleration= 0.0003 +/- 0.0003 [km/sec**2]

SMM C/P 1980 DOY115 254 +/- 1 degrees

angle= initial angle + angular velocity*time
       + 1/2 angular acceleration*time**2   # data points = 13

Top of Cavity
radial acceleration=0.288E-03 km/sec**2
        S=SMM   M=MK3   P=PMON

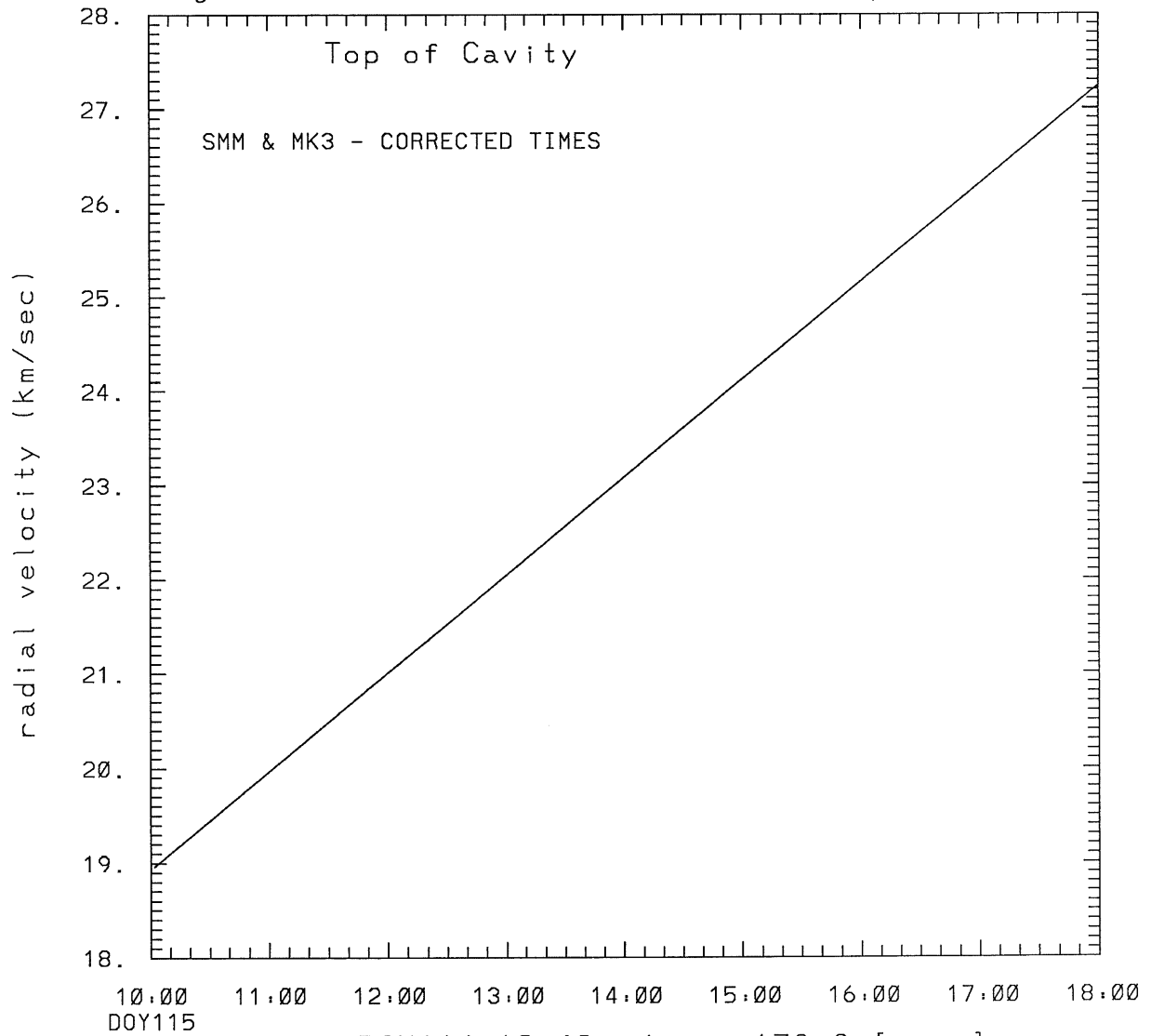SMM & MK3 - CORRECTED TIMES

position angle [degrees]

tstart=DOY114 18:48 +/-   179.9 [min.]
angular acceleration=-.109E-09 +/-0.983E-10 [rad/sec**2]

SMM C/P   1980 DOY115   254 +/-   1 degrees

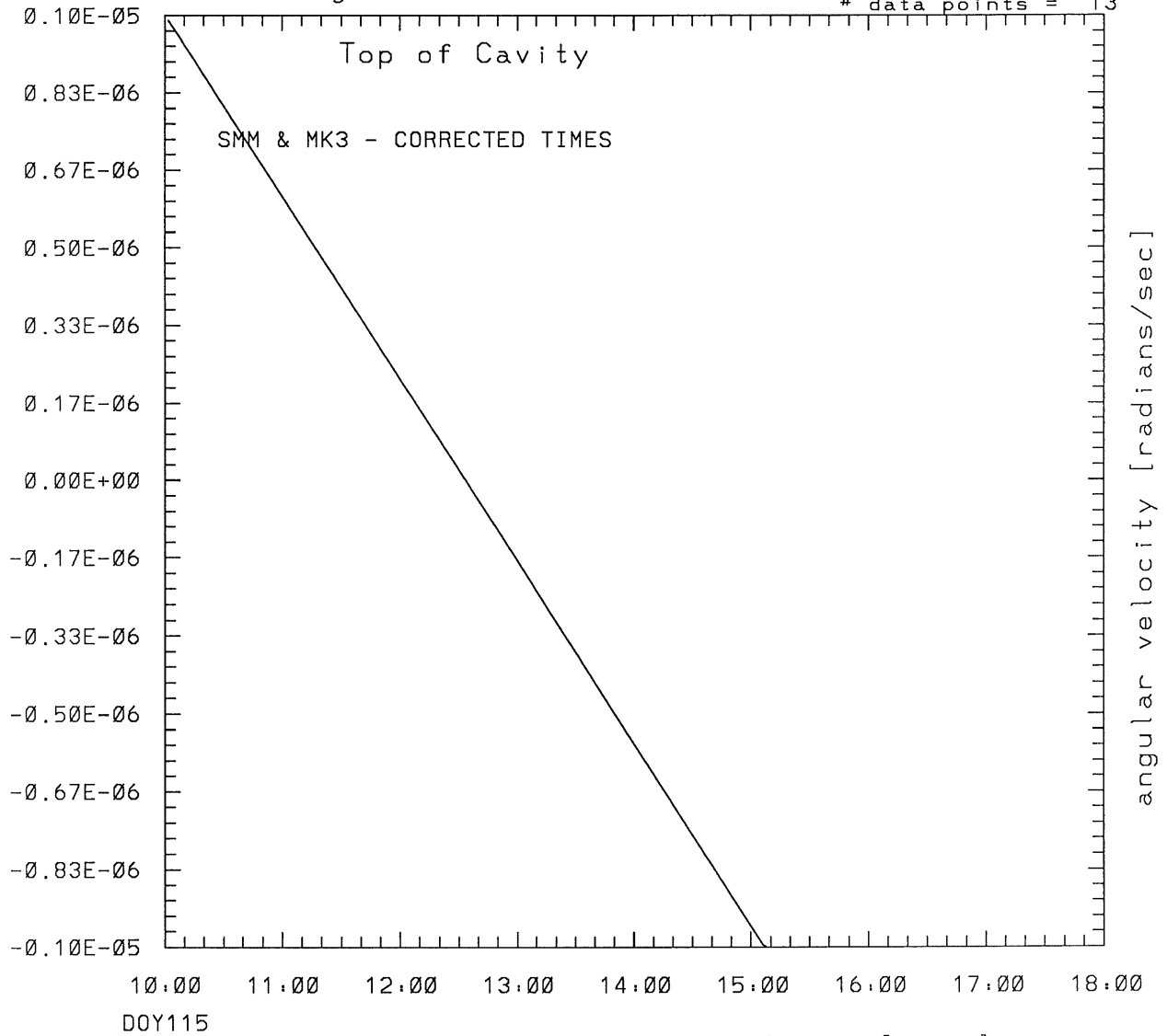height= h + vel*time + 1/2*accel*t   # data points =   13

Top of Cavity

SMM & MK3 - CORRECTED TIMES

radial velocity (km/sec)

28.
27.
26.
25.
24.
23.
22.
21.
20.
19.
18.

10:00   11:00   12:00   13:00   14:00   15:00   16:00   17:00   18:00
DOY115

tstart=DOY114 18:48 +/-   179.9 [min.]

radial acceleration=0.288E-03   km/sec**2

SMM C/P 1980 DOY115 254 +/- 1 degrees

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

data points = 13

Top of Cavity

SMM & MK3 - CORRECTED TIMES

| 0.10E-05 |
| 0.83E-06 |
| 0.67E-06 |
| 0.50E-06 |
| 0.33E-06 |
| 0.17E-06 |
| 0.00E+00 |
| -0.17E-06 |
| -0.33E-06 |
| -0.50E-06 |
| -0.67E-06 |
| -0.83E-06 |
| -0.10E-05 |

10:00   11:00   12:00   13:00   14:00   15:00   16:00   17:00   18:00

DOY115

angular velocity [radians/sec]

tstart=DOY114 18:48 +/-   179.9 [min.]
angular acceleration=-.109E-09 +/-
0.983E-10 [rad/sec**2]

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

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


                                      error in           error in
year doy     time       radii   radius        angle     angle    datatype
1980 115  10:28:32    1.87 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  10:50:18    2.00 +/- 0.15      255.0 +/-  0.5          SMM
1980 115  11:53:47    2.05 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  11:55:53    2.10 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  12: 2:15     2.10 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  12:26: 6     2.15 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  13:28:39    2.20 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  13:30:45    2.25 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  13:57:36    2.30 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  15:28:42    2.45 +/- 0.10      255.0 +/-  0.5          SMM
1980 115  16:34:10    2.60 +/- 0.15      255.0 +/-  0.5          SMM
1980 115  16:48:16    2.70 +/- 0.15      253.0 +/-  0.5          SMM
1980 115  16:50:22    2.70 +/- 0.15      255.0 +/-  0.5          SMM


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

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


START TIME:

 Event began at t = 0 + -0.428E+03 +/-  0.371E+01 [minutes]
 In more convenient units:
 Event began at DOY 115  2:52 +/-  0.371E+01 [minutes]

 Origin defined at DOY115 10: 0

RADIAL INFORMATION:

RADIAL VELOCITY =     23. +/-      1. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =      0.184E+01 +/-      0.184E-01 [solar radii]
 c(2) =      0.196E-02 +/-      0.828E-04 [radii/min]
 c(2) =      0.228E+02 +/-      0.960E+00 [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)=  0.20895E-01 [radii] see Bevington pg. 114
                  error in c(2)=  0.83766E-04 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.5236E-06 +/-    0.3122E-06[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

 a(1) = 255. +/-    0. [degrees]
 a(2) =    -0.180E-02 +/-     0.107E-02 [degrees/min]
 a(2) =    -0.524E-06 +/-     0.312E-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 RADIAL velocity at 10:28 =   23. km/sec

The RADIAL velocity at 10:50 =   23. km/sec

The RADIAL velocity at 11:53 =   23. km/sec

The RADIAL velocity at 11:55 =   23. km/sec

The RADIAL velocity at 12: 2 =   23. km/sec

The RADIAL velocity at 12:26 =   23. km/sec

The RADIAL velocity at 13:28 =   23. km/sec

The RADIAL velocity at 13:30 =   23. km/sec

The RADIAL velocity at 13:57 =   23. km/sec

The RADIAL velocity at 15:28 =   23. km/sec

The RADIAL velocity at 16:34 =   23. km/sec

The RADIAL velocity at 16:48 =   23. km/sec

The RADIAL velocity at 16:50 =   23. km/sec


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

 Fit is ok [ier=1]

 Standard Deviation in the height =  0.27
 Standard Deviation in start time measurement =    0.129E+03
 Error in time =        0.65795E+02 using best fit method
 See Taylor Error Analysis [Univ of Colorado] pg.78

 Value of reduced Chi Squared returned from nllst2 = 0.112E-02
 Reduced Chi Squared = 0.116E-01
 Chi Squared = 0.128E+00
 The probability for exceeding chi square = 0.100E+01

 The correlation coefficient =    0.991E+00
 The probability that no LINEAR correlation exists between the variables =   0.3109]
 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
1980 115  10:28:32    1.87 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  10:50:18    2.00 +/- 0.15   255.0 +/-  0.5       SMM
1980 115  11:53:47    2.05 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  11:55:53    2.10 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  12: 2:15    2.10 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  12:26: 6    2.15 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  13:28:39    2.20 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  13:30:45    2.25 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  13:57:36    2.30 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  15:28:42    2.45 +/- 0.10   255.0 +/-  0.5       SMM
1980 115  16:34:10    2.60 +/- 0.15   255.0 +/-  0.5       SMM
1980 115  16:48:16    2.70 +/- 0.15   253.0 +/-  0.5       SMM
1980 115  16:50:22    2.70 +/- 0.15   255.0 +/-  0.5       SMM

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

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

START TIME:

 Event began at t = 0 + -0.912E+03 +/-  0.180E+03 [minutes]
 In more convenient units:
 Event began at DOY 114 18:48 +/-  0.180E+03 [minutes]

 Origin defined at DOY115 10: 0

RADIAL INFORMATION:

RADIAL ACCELERATION =  0.288E-03 +/-  0.275E-03 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

 c(1) =    0.187E+01 +/-    0.316E-01 [solar radii]
 c(2) =    0.163E-02 +/-    0.327E-03 [radii/min]
 c(2) =    0.189E+02 +/-    0.379E+01 [km/sec]
 c(3) =    0.746E-06 +/-    0.710E-06 [radii/min**2]
 c(3) =    0.288E-03 +/-    0.275E-03 [km/sec**2]

 The computed ERRORS in coefficients [BEVINGTON] are:

    Approximate error in c(1) =  0.34590E-01 [radii] Bevington pg 154 (8-30)
          Exact error in c(1) =  0.80654E-02 [radii] Bevington pg 154 (8-28)
    Approximate error in c(2) =  0.36177E-03 [radii/min] Bevington pg 154 (8-30)
          Exact error in c(2) =  0.65867E-04 [radii/min] Bevington pg 154 (8-28)
    Approximate error in c(3) =  0.75483E-06 [radii/min**2] Bevington pg 154 (8-30)
          Exact error in c(3) =  0.14392E-06 [radii/min**2] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION= -0.1087E-09 +/-   0.9825E-10[radians/sec**2]
```

The computed ANGULAR coefficients and errors FROM NLLST2 are:

```
a(1) =  255. +/-    0. [degrees]
a(2) =      0.344E-02 +/-     0.486E-02 [degrees/min]
a(2) =      0.100E-05 +/-     0.141E-05 [rad/sec]
a(3) =     -0.112E-04 +/-     0.101E-04 [degrees/min**2]
a(3) =     -0.109E-09 +/-     0.983E-10 [rad/sec**2]
```

The RADIAL velocity at 10:28 =   19. km/sec

The RADIAL velocity at 10:50 =   20. km/sec

The RADIAL velocity at 11:53 =   21. km/sec

The RADIAL velocity at 11:55 =   21. km/sec

The RADIAL velocity at 12: 2 =   21. km/sec

The RADIAL velocity at 12:26 =   21. km/sec

The RADIAL velocity at 13:28 =   23. km/sec

The RADIAL velocity at 13:30 =   23. km/sec

The RADIAL velocity at 13:57 =   23. km/sec

The RADIAL velocity at 15:28 =   25. km/sec

The RADIAL velocity at 16:34 =   26. km/sec

The RADIAL velocity at 16:48 =   26. km/sec

The RADIAL velocity at 16:50 =   26. km/sec


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

 Fit is ok [ier=1]

 Standard Deviation in the height = 0.27
 Standard Deviation in start time measurement =   0.129E+03
 Value of reduced Chi Squared returned from nllst2 = 0.111E-02
 Reduced Chi Squared = 0.890E-02
 Chi Squared = 0.890E-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 =   0.8768E+00
 The correlation between the data and the time**2 term =   0.8355E+00
 The correlation between the data and the complete equation of motion=0.9780E+00
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]