SMM C/P 1984 DOY319 103 +/- 4 degrees

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

Top of Cavity [Subtraction Images]
angular velocity=-.316E-05 [radians/sec]
S=SMM   M=MK3   P=PMON

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

0:00   2:00   4:00   6:00   8:00   10:00   12:00
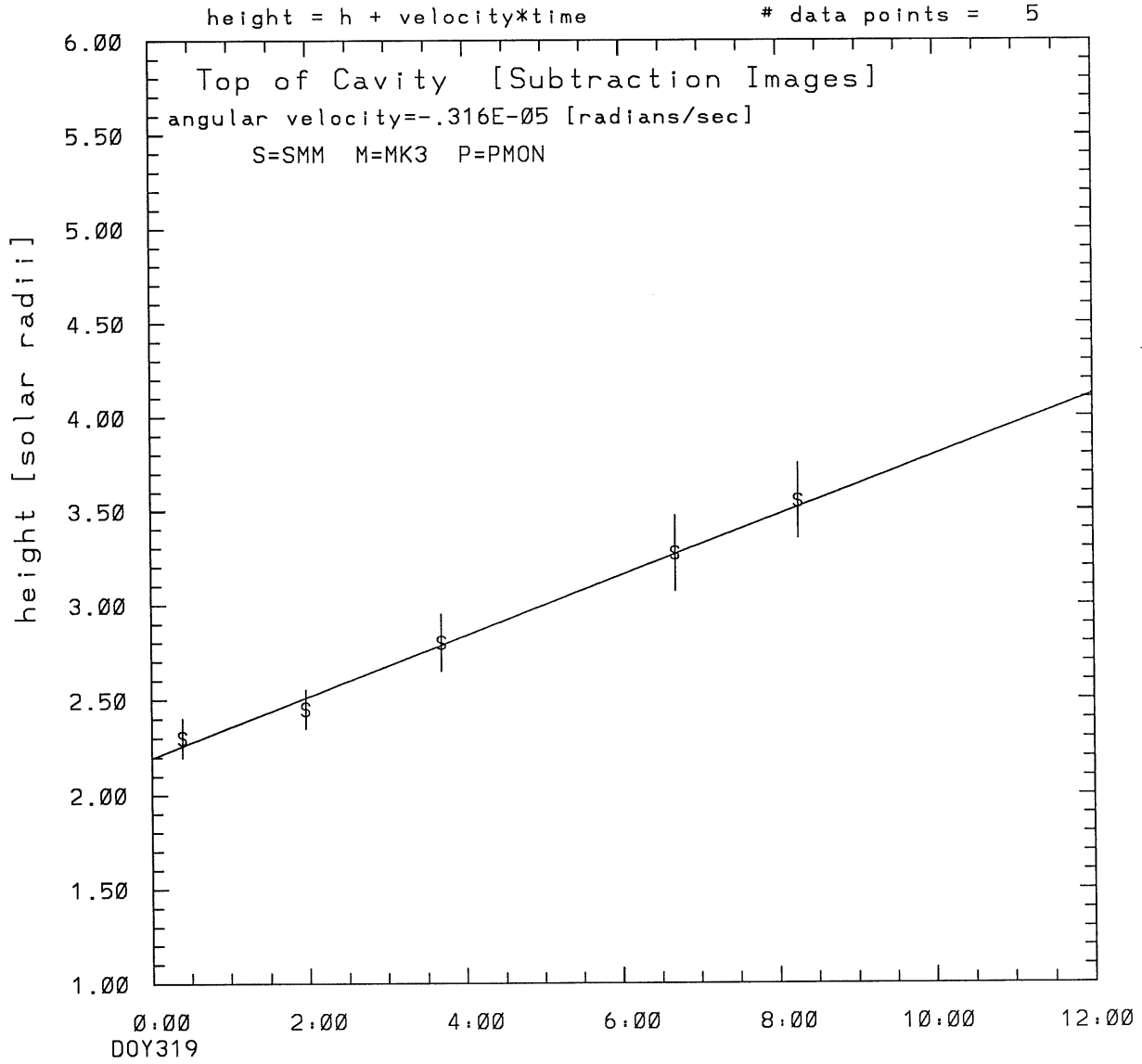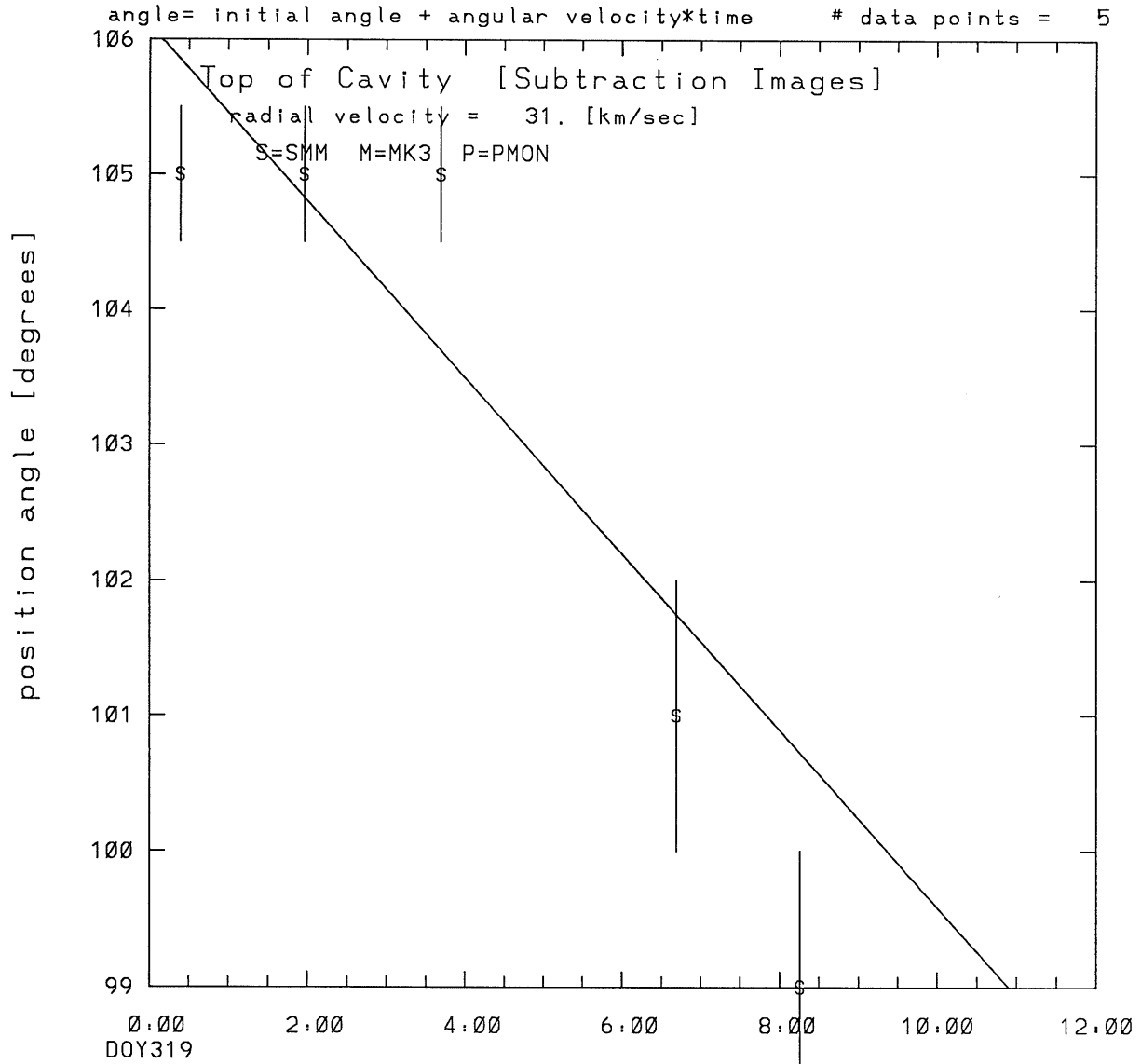DOY319

tstart=DOY318 16:34 +/-   6.6 [min.]
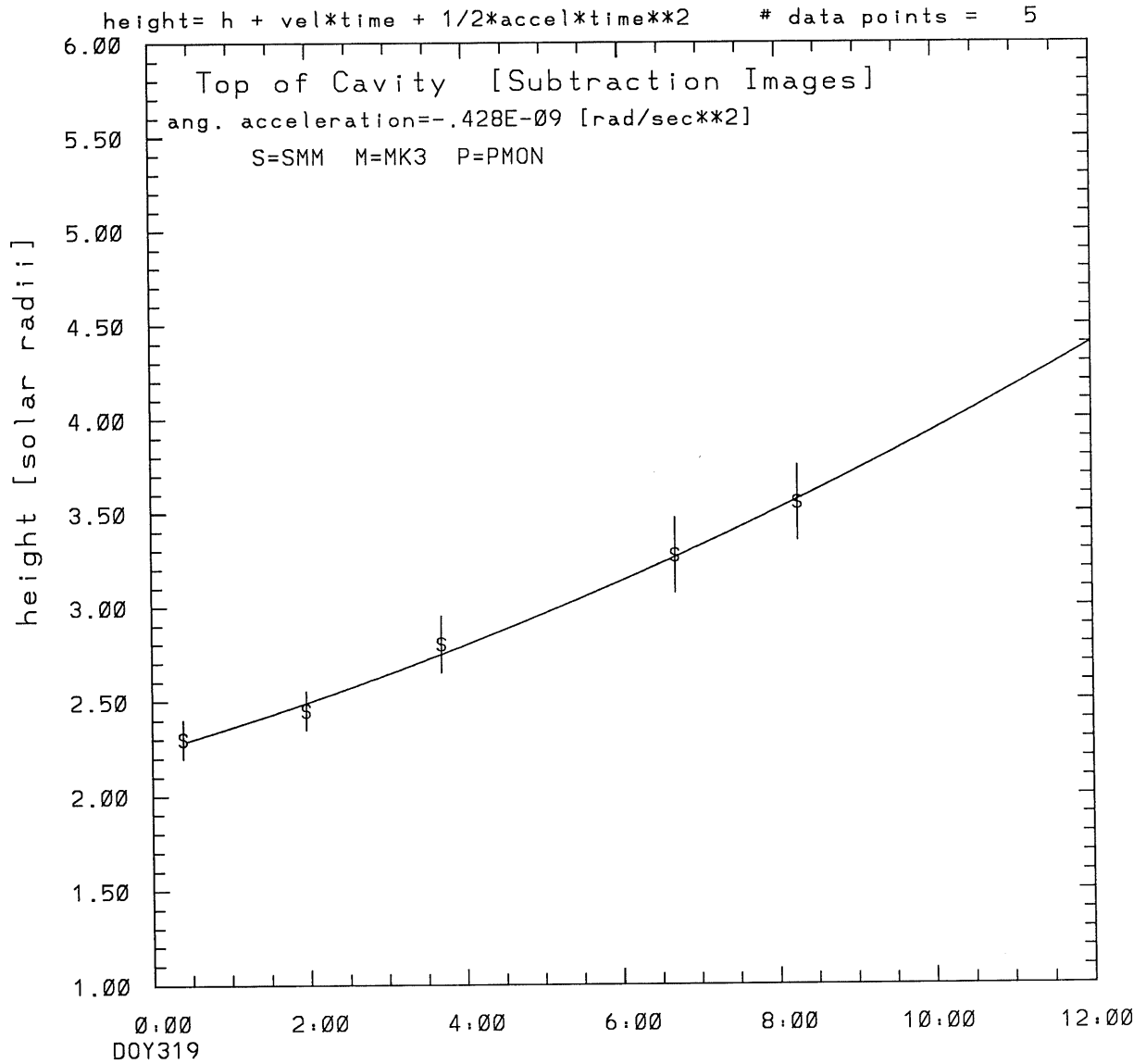radial velocity=   31. +/-   2. [km/sec]

SMM C/P 1984 DOY319 103 +/- 4 degrees

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

Top of Cavity [Subtraction Images]
radial velocity =   31. [km/sec]
S=SMM M=MK3 P=PMON

position angle [degrees]

106
105
104
103
102
101
100
99

0:00   2:00   4:00   6:00   8:00   10:00   12:00
DOY319

tstart=DOY318 16:34 +/-   6.6 [min.]
angular velocity=-.316E-05 +/- 0.103E-05 [rad/sec]

SMM C/P 1984 DOY319 103 +/- 4 degrees

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

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

Top of Cavity [Subtraction Images]
ang. acceleration=-.428E-09 [rad/sec**2]
    S=SMM   M=MK3   P=PMON

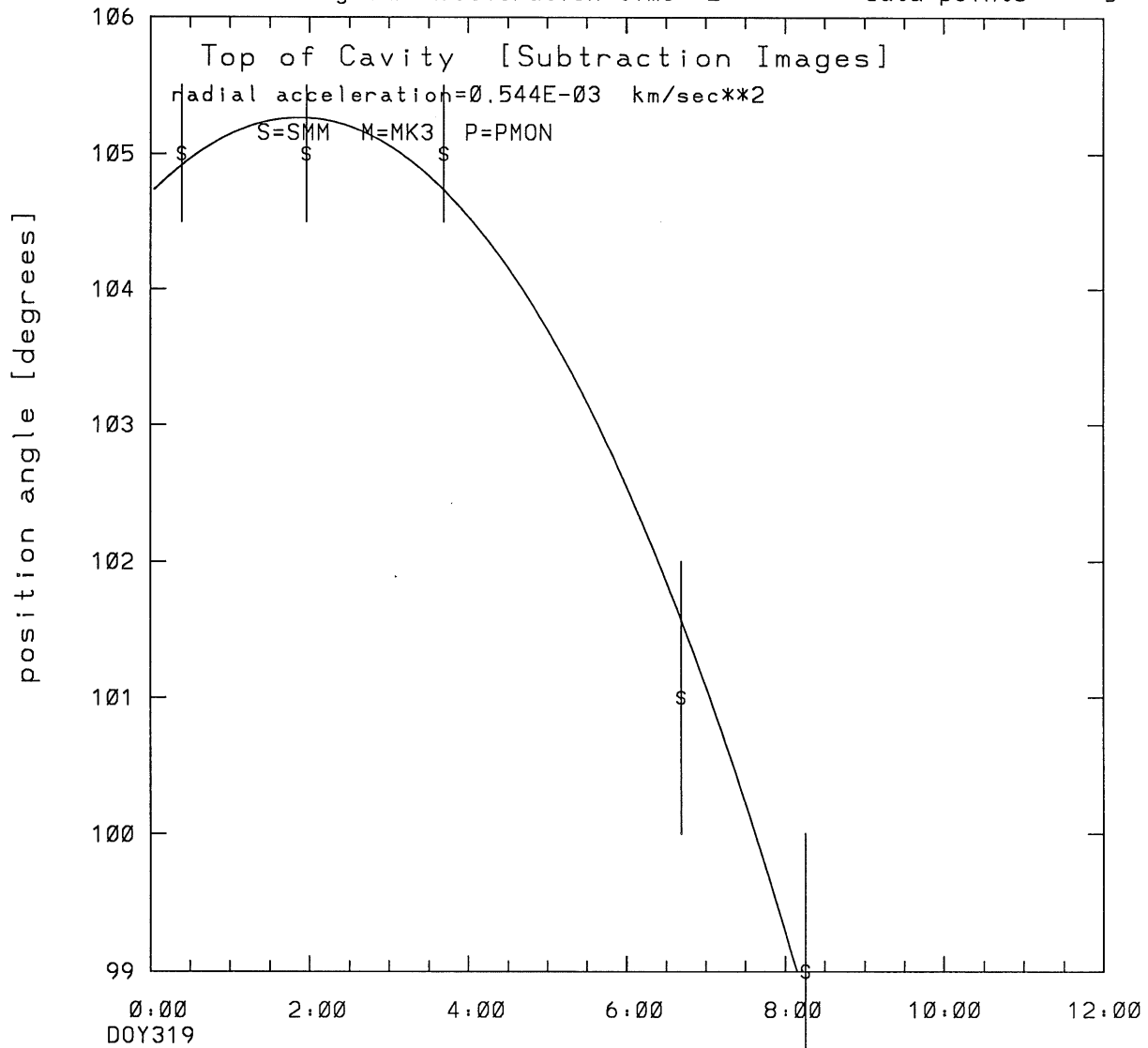0:00   2:00   4:00   6:00   8:00   10:00   12:00
DOY319

tstart=DOY318 12:13   from derivative=0
Event begins at   1.53 Solar Radii
radial acceleration= 0.0005 +/- 0.0004 [km/sec**2]
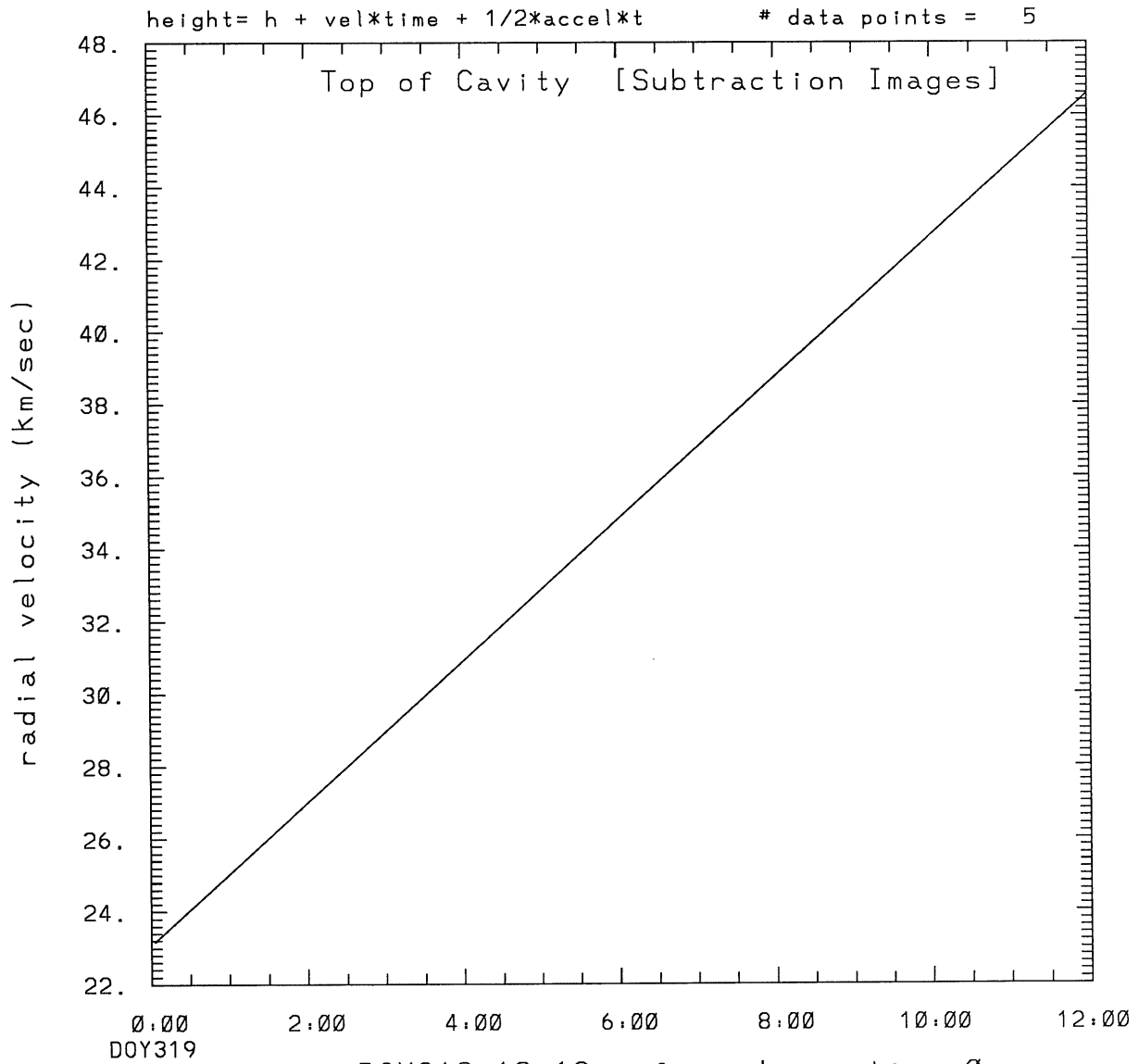
SMM C/P 1984 DOY319 103 +/- 4 degrees
angle= initial angle + angular velocity*time
    + 1/2 angular acceleration*time**2   # data points =   5

Top of Cavity [Subtraction Images]
radial acceleration=0.544E-03 km/sec**2
S=SMM M=MK3 P=PMON

tstart=DOY318 12:13   from derivative=0
angular acceleration=-.428E-09 +/-0.689E-10 [rad/sec**2]

SMM C/P   1984 DOY319   103 +/-   4 degrees

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

Top of Cavity [Subtraction Images]

radial velocity (km/sec)

48.
46.
44.
42.
40.
38.
36.
34.
32.
30.
28.
26.
24.
22.

0:00   2:00   4:00   6:00   8:00   10:00   12:00
DOY319

tstart=DOY318 12:13   from derivative=0
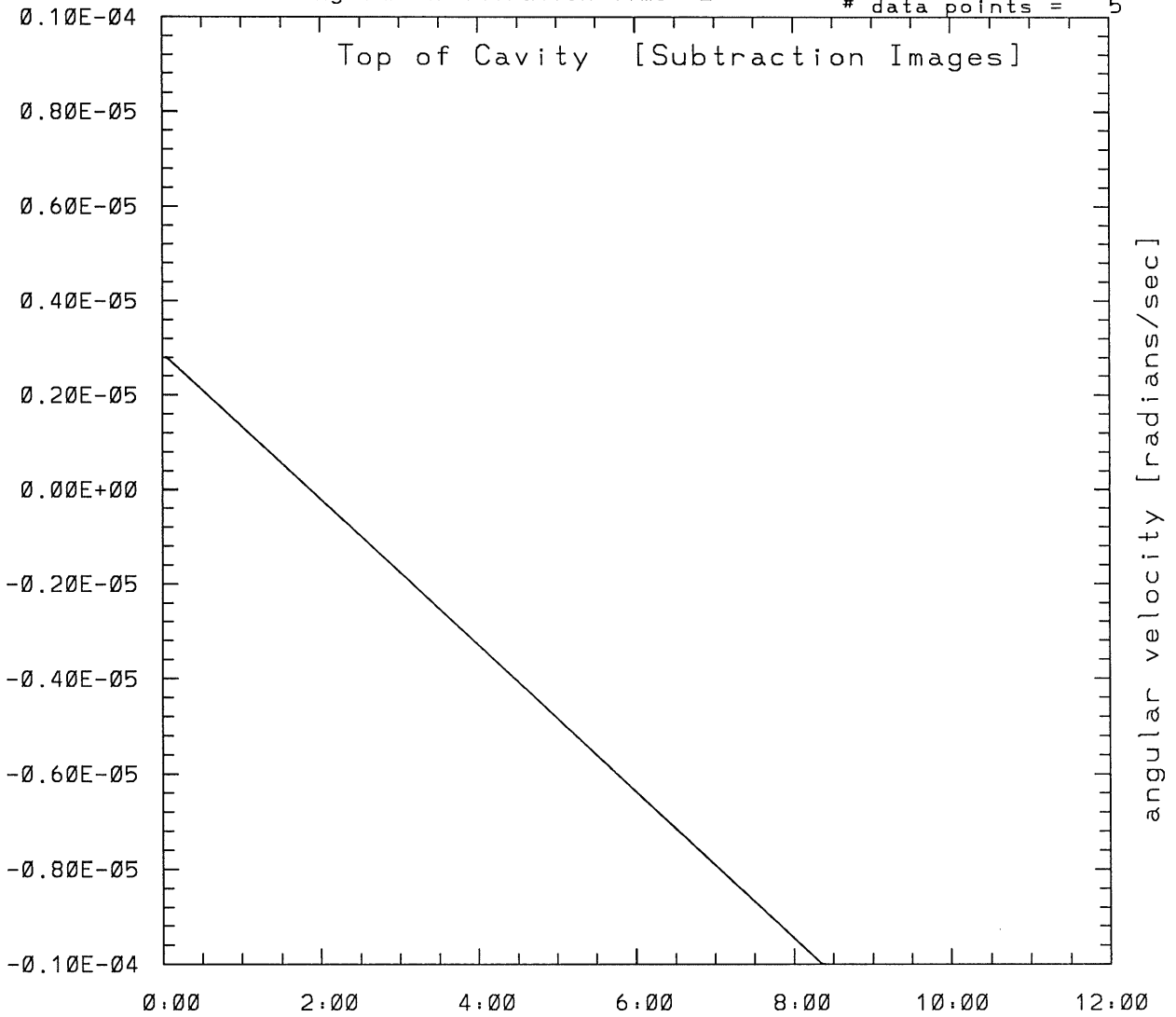Event begins at   1.53 Solar Radii
radial acceleration=0.544E-03   km/sec**2

SMM C/P   1984 DOY319   103 +/-   4 degrees

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

data points =   5

0.10E-04

Top of Cavity [Subtraction Images]

0.80E-05

0.60E-05

0.40E-05

0.20E-05

0.00E+00

-0.20E-05

angular velocity [radians/sec]

-0.40E-05

-0.60E-05

-0.80E-05

-0.10E-04

0:00   2:00   4:00   6:00   8:00   10:00   12:00

DOY319

tstart=DOY318 12:13   from derivative=0
angular acceleration=-.428E-09 +/-
       0.689E-10 [rad/sec**2]

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

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

                                error in        error in
year doy      time     radii   radius    angle   angle    datatype
1984 319    0:23:19    2.30 +/- 0.10    105.0 +/-  0.5      SMM
1984 319    1:57:19    2.45 +/- 0.10    105.0 +/-  0.5      SMM
1984 319    3:41:38    2.80 +/- 0.15    105.0 +/-  0.5      SMM
1984 319    6:41:19    3.27 +/- 0.20    101.0 +/-  1.0      SMM
1984 319    8:15:19    3.55 +/- 0.20     99.0 +/-  1.0      SMM


*****************************************
 Structure being measured:
Top of Cavity (subtractions)
*****************************************

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

START TIME:

  Event began at t = 0 + -0.448E+03 +/-  0.655E+01 [minutes]
  In more convenient units:
  Event began at DOY 318 16:34 +/-  0.655E+01 [minutes]

  Origin defined at DOY319  0: 0

RADIAL INFORMATION:

RADIAL VELOCITY =    31. +/-     2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

  c(1) =     0.219E+01 +/-     0.317E-01 [solar radii]
  c(2) =     0.267E-02 +/-     0.146E-03 [radii/min]
  c(2) =     0.310E+02 +/-     0.170E+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)=  0.36479E-01 [radii] see Bevington pg. 114
                    error in c(2)=  0.11900E-03 [radii/min] see Bevington pg. 114
ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.3160E-05 +/-    0.1028E-05[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

  a(1) = 106. +/-    1. [degrees]
  a(2) =    -0.109E-01 +/-     0.353E-02 [degrees/min]
  a(2) =    -0.316E-05 +/-     0.103E-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 RADIAL velocity at  0:23 =   31. km/sec

The RADIAL velocity at  1:57 =   31. km/sec

The RADIAL velocity at  3:41 =   31. km/sec
```

The RADIAL velocity at 6:41 =   31. km/sec

The RADIAL velocity at 8:15 =   31. km/sec

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

 Fit is ok [ier=1]

 Standard Deviation in the height = 0.53
 Standard Deviation in start time measurement =   0.175E+03
 Error in time =   0.30193E+02 using best fit method
 See Taylor Error Analysis [Univ of Colorado] pg.78

 Value of reduced Chi Squared returned from nllst2 = 0.236E-02
 Reduced Chi Squared = 0.488E-02
 Chi Squared = 0.146E-01
 The probability for exceeding chi square = 0.100E+01

 The correlation coefficient =   0.997E+00
 The probability that no LINEAR correlation exists between the variables =   0.1644]
 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
1984 319    0:23:19   2.30 +/- 0.10    105.0 +/-  0.5      SMM
1984 319    1:57:19   2.45 +/- 0.10    105.0 +/-  0.5      SMM
1984 319    3:41:38   2.80 +/- 0.15    105.0 +/-  0.5      SMM
1984 319    6:41:19   3.27 +/- 0.20    101.0 +/-  1.0      SMM
1984 319    8:15:19   3.55 +/- 0.20     99.0 +/-  1.0      SMM


******************************************
 Structure being measured:
Top of Cavity (subtractions)
******************************************

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


START TIME:

 tstart=DOY318 12:13 from derivative = 0
Event begins at    1.53 Solar Radii
 Origin defined at DOY319  0: 0


RADIAL INFORMATION:
```

RADIAL ACCELERATION = $0.544E-03$ +/- $0.361E-03$ km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

```
    c(1) =     0.224E+01 +/-     0.388E-01 [solar radii]
    c(2) =     0.199E-02 +/-     0.469E-03 [radii/min]
    c(2) =     0.231E+02 +/-     0.544E+01 [km/sec]
    c(3) =     0.141E-05 +/-     0.934E-06 [radii/min**2]
    c(3) =     0.544E-03 +/-     0.361E-03 [km/sec**2]
```

The computed ERRORS in coefficients [BEVINGTON] are:

```
    Approximate error in c(1) =  0.56196E-01 [radii] Bevington pg 154 (8-30)
          Exact error in c(1) =  0.13427E-01 [radii] Bevington pg 154 (8-28)
    Approximate error in c(2) =  0.56324E-03 [radii/min] Bevington pg 154 (8-30)
          Exact error in c(2) =  0.14869E-03 [radii/min] Bevington pg 154 (8-28)
    Approximate error in c(3) =  0.10429E-05 [radii/min**2] Bevington pg 154 (8-30)
          Exact error in c(3) =  0.30157E-06 [radii/min**2] Bevington pg 154 (8-28)
```

ANGULAR INFORMATION:

ANGULAR ACCELERATION= $-0.4282E-09$ +/- $0.6892E-10$[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

```
    a(1) = 105. +/-    0. [degrees]
    a(2) =     0.991E-02 +/-     0.352E-02 [degrees/min]
    a(2) =     0.288E-05 +/-     0.102E-05 [rad/sec]
    a(3) =    -0.442E-04 +/-     0.711E-05 [degrees/min**2]
    a(3) =    -0.428E-09 +/-     0.689E-10 [rad/sec**2]
```

The RADIAL velocity at 0:23 =   24. km/sec

```
The RADIAL velocity at  1:57 =   27. km/sec

The RADIAL velocity at  3:41 =   30. km/sec

The RADIAL velocity at  6:41 =   36. km/sec

The RADIAL velocity at  8:15 =   39. km/sec


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

 Fit is ok [ier=1]

 Standard Deviation in the height =  0.53
 Standard Deviation in start time measurement =    0.175E+03
 Value of reduced Chi Squared returned from nllst2 = 0.179E-02
 Reduced Chi Squared = 0.685E-02
 Chi Squared = 0.137E-01
 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  =   0.1002E+01
 The correlation between the data and the time**2 term =   0.9181E+00
 The correlation between the data and the complete equation of motion=0.9897E+00
 SEE BEVINGTON "Data Reduction and Error Analysis" [1969]
```
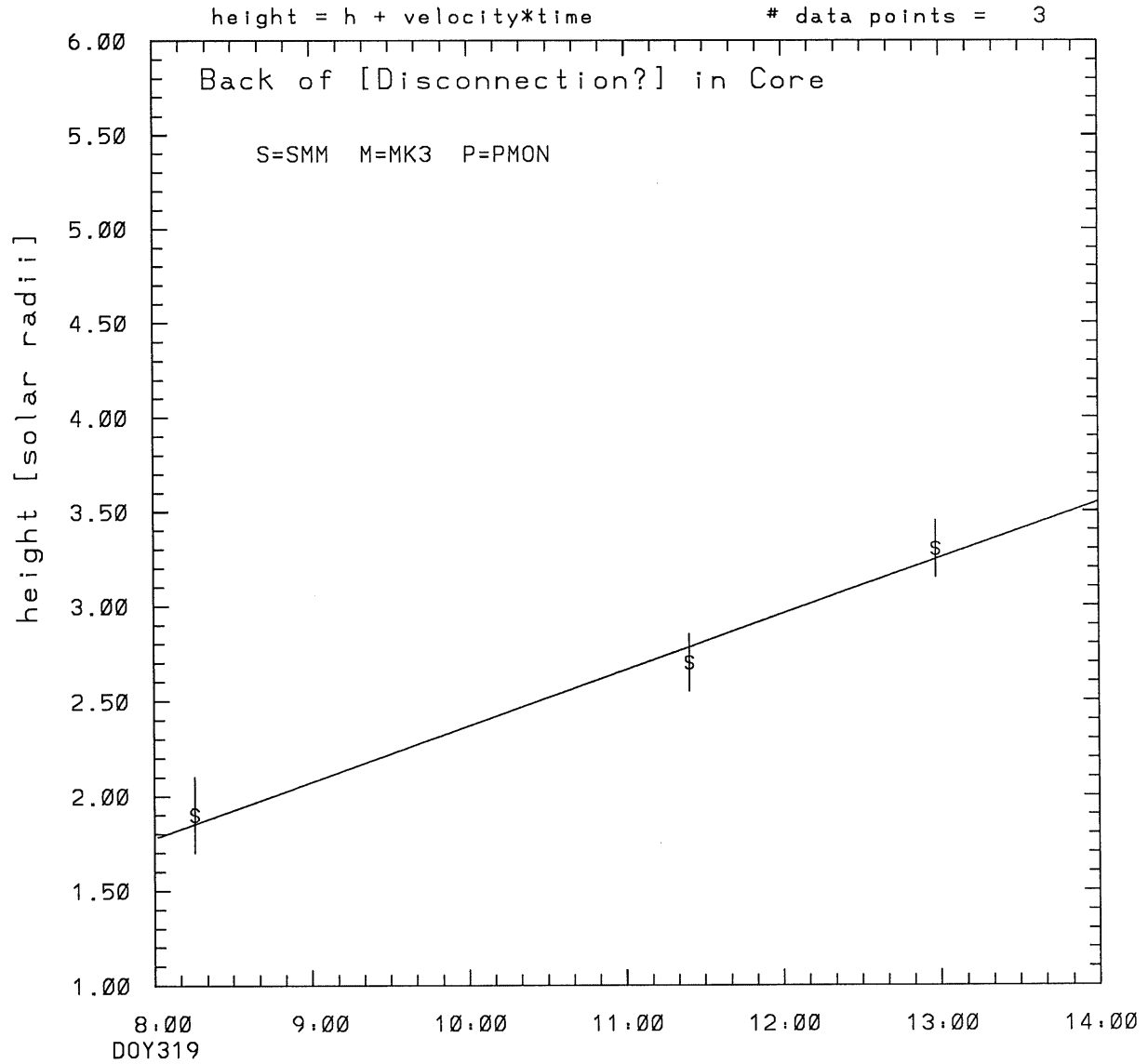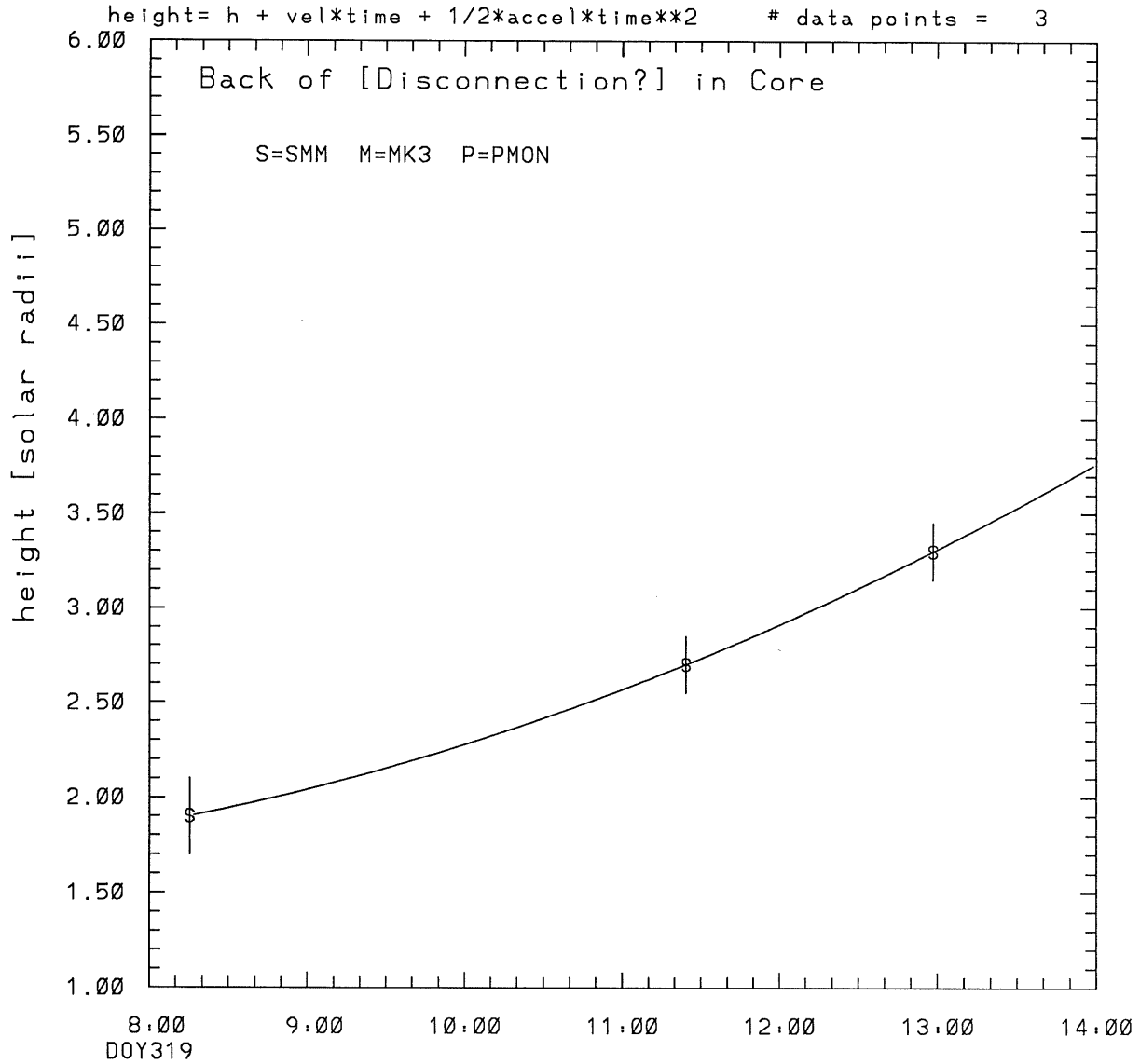
SMM C/P 1984 DOY319 105 +/- Ø degrees

height = h + velocity*time   # data points =   3

Back of [Disconnection?] in Core

S=SMM   M=MK3   P=PMON

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

8:00   9:00   10:00   11:00   12:00   13:00   14:00
DOY319

tstart=DOY319   5:24 +/-   9.3 [min.]
radial velocity=   57. +/-   5. [km/sec]

SMM C/P 1984 DOY319 105 +/- Ø degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   3

Back of [Disconnection?] in Core

S=SMM   M=MK3   P=PMON

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

8:00   9:00   10:00   11:00   12:00   13:00   14:00
DOY319

tstart=DOY319   5:12   from derivative=Ø
Event begins at   1.64 Solar Radii
radial acceleration= Ø.ØØ29 +/- Ø.ØØØØ [km/sec**2]

SMM C/P 1984 DOY319 105 +/- 0 degrees
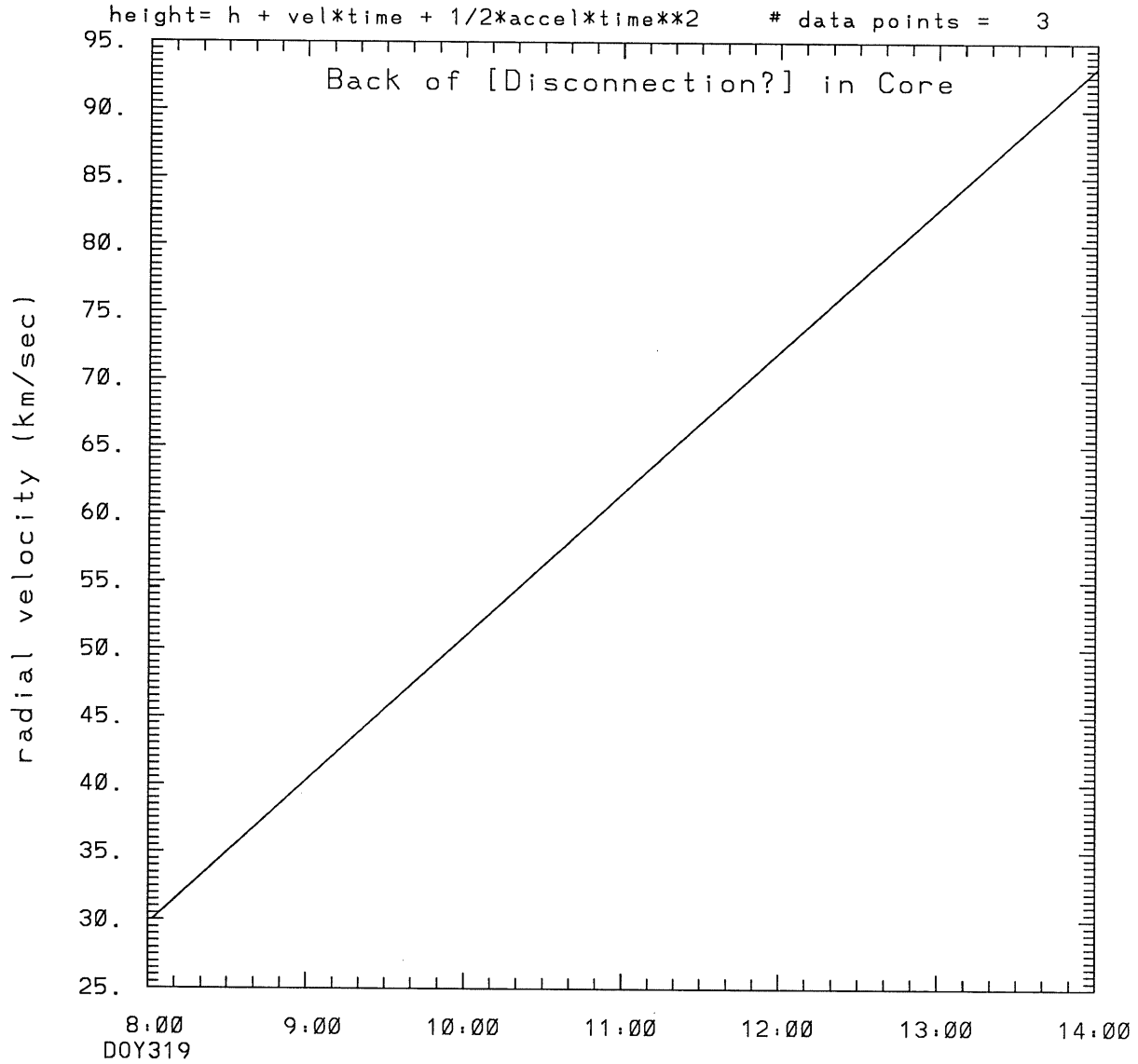
height= h + vel*time + 1/2*accel*time**2   # data points =   3

Back of [Disconnection?] in Core

radial velocity (km/sec) vs time axis (8:00 DOY319 to 14:00)

tstart=DOY319 5:12   from derivative=0
Event begins at   1.64 Solar Radii
radial acceleration=0.294E-02 km/sec**2

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

```
*******
INPUT:
*******
```

			error in	error in			
year	doy	time	radii	radius	angle	angle	datatype
1984	319	8:15:19	1.90 +/-	0.20	105.0 +/-	0.5	SMM
1984	319	11:24:20	2.70 +/-	0.15	105.0 +/-	0.5	SMM
1984	319	12:58:19	3.30 +/-	0.15	105.0 +/-	1.0	SMM

```
*****************************************
 Structure being measured:
Back of [Disconnection?] in Core
*****************************************
```

```
*******
OUTPUT:
*******
```

START TIME:

Event began at t = 0 + -0.158E+03 +/- 0.931E+01 [minutes]
In more convenient units:
Event began at DOY 319 5:24 +/- 0.931E+01 [minutes]

Origin defined at DOY319 8: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 57. +/- 5. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) =$ 0.178E+01 +/- 0.991E-01 [solar radii]
$c(2) =$ 0.492E-02 +/- 0.439E-03 [radii/min]
$c(2) =$ 0.571E+02 +/- 0.509E+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 $c(1)=$ 0.11295E+00 [radii] see Bevington pg. 114
error in $c(2)=$ 0.54054E-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) = 105. +/-   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 8:15 = 0.000E+00 km/sec
The TOTAL velocity at 8:15 =   57. km/sec

The TANGENTIAL velocity at 11:24 = 0.000E+00 km/sec
The TOTAL velocity at 11:24 =   57. km/sec

The TANGENTIAL velocity at 12:58 = 0.000E+00 km/sec
The TOTAL velocity at 12:58 =   57. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.70
Standard Deviation in start time measurement =   0.118E+03
Error in time =   0.22375E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.650E-02
Reduced Chi Squared = 0.249E-01
Chi Squared = 0.249E-01
The probability for exceeding chi square = 0.936E+00

The correlation coefficient =   0.994E+00
The probability that no LINEAR correlation exists between the variables =   0.6953E-01
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
1984 319   8:15:19  1.90 +/- 0.20  105.0 +/- 0.5    SMM
1984 319   11:24:20 2.70 +/- 0.15  105.0 +/- 0.5    SMM
1984 319   12:58:19 3.30 +/- 0.15  105.0 +/- 1.0    SMM


*****************************************
 Structure being measured:
 Back of [Disconnection?] in Core
*****************************************


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


START TIME:

 tstart=DOY319  5:12 from derivative = 0
 Event begins at   1.64 Solar Radii
  Origin defined at DOY319  8: 0


RADIAL INFORMATION:

RADIAL ACCELERATION =  0.294E-02 +/-  0.101E-06 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

    c(1) =   0.186E+01 +/-   0.559E-05 [solar radii]
    c(2) =   0.256E-02 +/-   0.837E-07 [radii/min]
    c(2) =   0.297E+02 +/-   0.971E-03 [km/sec]
    c(3) =   0.760E-05 +/-   0.261E-09 [radii/min**2]
    c(3) =   0.294E-02 +/-   0.101E-06 [km/sec**2]


ANGULAR INFORMATION:

ANGULAR ACCELERATION=  0.0000E+00 +/-   0.0000E+00[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

    a(1) = 105. +/-   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 8:15 = 0.000E+00 km/sec
The TOTAL velocity at 8:15 = 32. km/sec

The TANGENTIAL velocity at 11:24 = 0.000E+00 km/sec
The TOTAL velocity at 11:24 = 66. km/sec

The TANGENTIAL velocity at 12:58 = 0.000E+00 km/sec
The TOTAL velocity at 12:58 = 82. km/sec

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

Number data points = number of coefficients. No error analysis is possible.

Correlation coefficient is not computable!