SMM C/P   1986 DOY200   264 +/-   0 degrees

height = h + velocity*time   # data points =   8

Southern Edge of Front

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
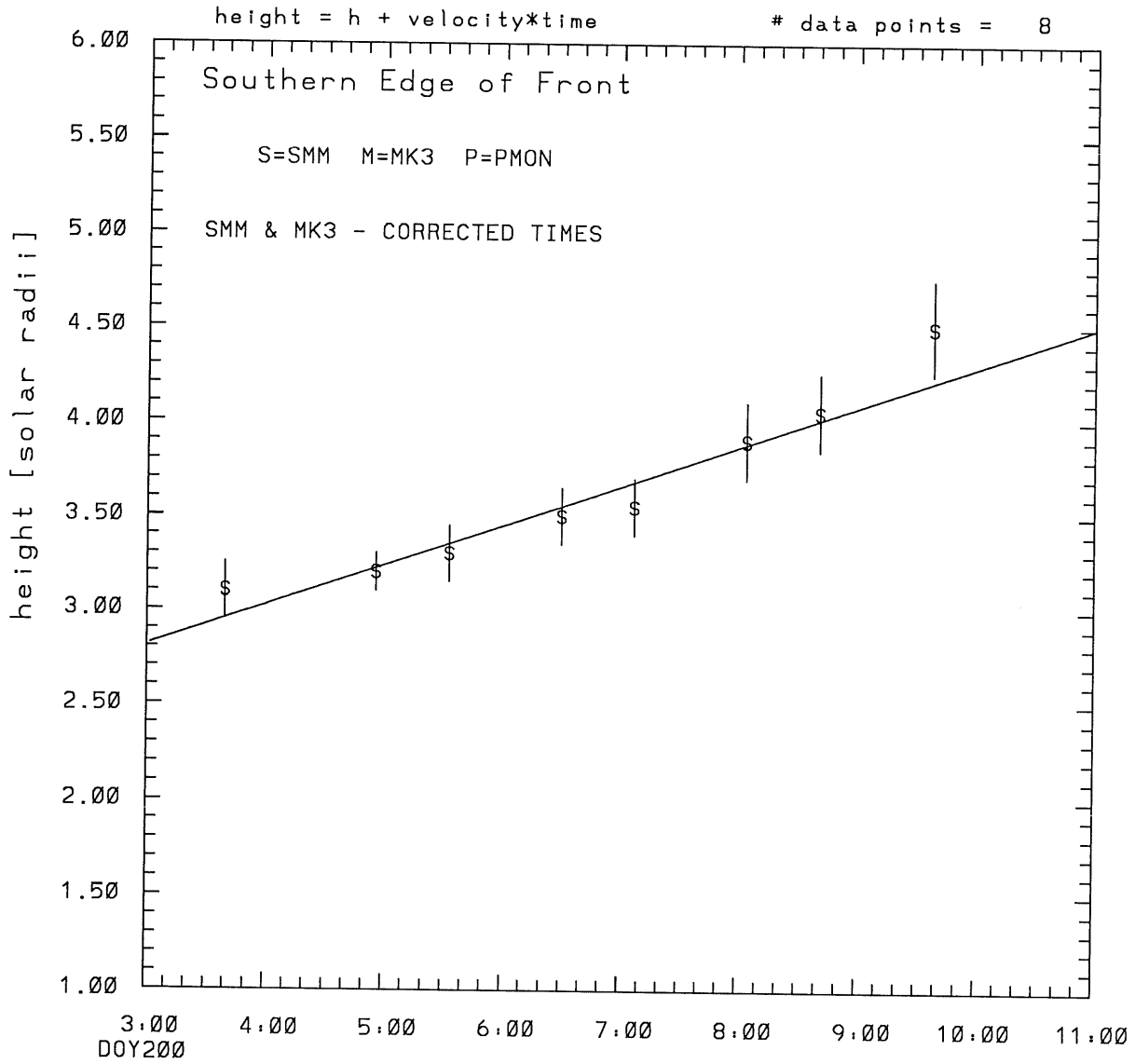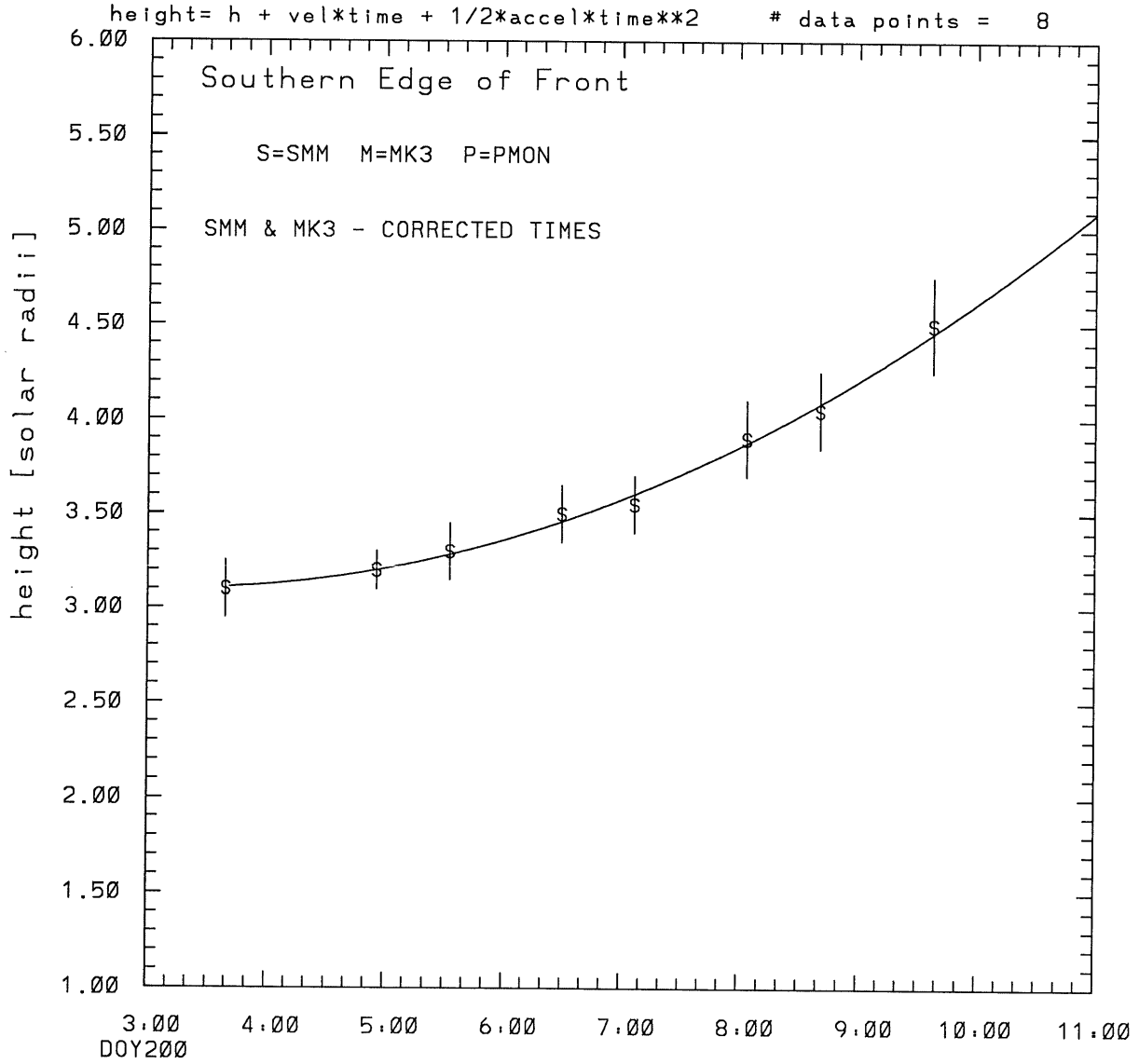2.00
1.50
1.00

3:00 4:00 5:00 6:00 7:00 8:00 9:00 10:00 11:00
DOY200

tstart=DOY199 18:26 +/-   7.9 [min.]
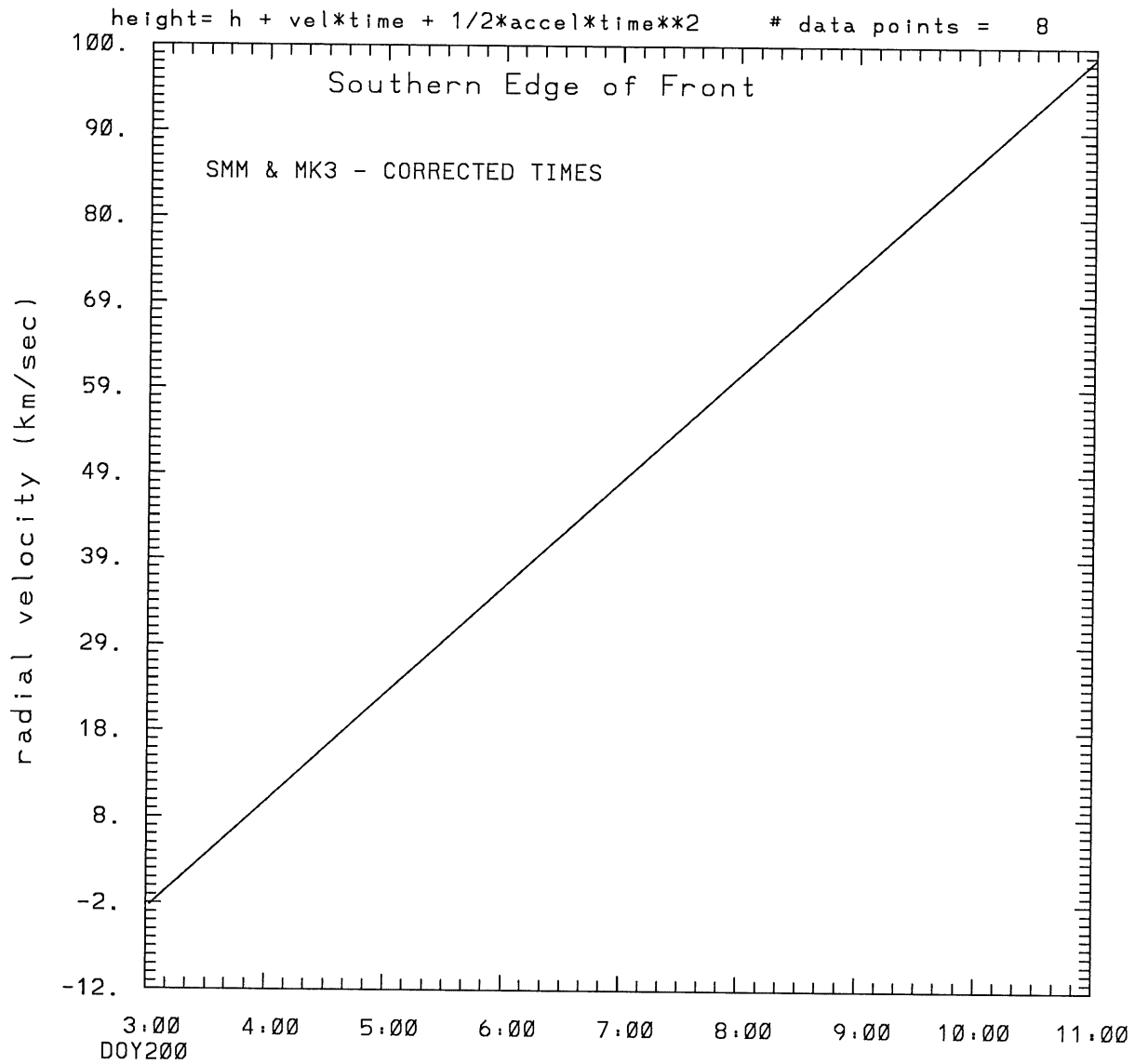radial velocity=   41. +/-   4. [km/sec]

SMM C/P 1986 DOY200 264 +/- 0 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   8

6.00

Southern Edge of Front

5.50

    S=SMM   M=MK3   P=PMON

5.00

SMM & MK3 - CORRECTED TIMES

height [solar radii]

4.50

4.00

3.50

3.00

2.50

2.00

1.50

1.00

3.00   4.00   5.00   6.00   7.00   8.00   9.00   10.00   11.00
DOY200

tstart=DOY200 3:11   from derivative=0
Event begins at   3.10 Solar Radii
radial acceleration= 0.0035 +/- 0.0004 [km/sec**2]

SMM C/P 1986 DOY200 264 +/-   0 degrees

height= h + vel*time + 1/2*accel*time**2   # data points =   8

Southern Edge of Front

SMM & MK3 - CORRECTED TIMES

radial velocity (km/sec)

100.
90.
80.
69.
59.
49.
39.
29.
18.
8.
-2.
-12.

3:00   4:00   5:00   6:00   7:00   8:00   9:00   10:00   11:00
DOY200

tstart=DOY200 3:11   from derivative=0
Event begins at   3.10 Solar Radii
radial acceleration=0.352E-02 km/sec**2

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


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

year doy	time	radii	error in radius	angle	error in angle	datatype
1986 200	3:39:31	3.10 +/-	0.15	264.0 +/-	1.0	SMM
1986 200	4:56: 3	3.20 +/-	0.10	264.0 +/-	1.0	SMM
1986 200	5:33: 3	3.30 +/-	0.15	264.0 +/-	1.0	SMM
1986 200	6:30: 3	3.50 +/-	0.15	264.0 +/-	1.0	SMM
1986 200	7: 7: 3	3.55 +/-	0.15	264.0 +/-	1.0	SMM
1986 200	8: 4: 2	3.90 +/-	0.20	264.0 +/-	1.0	SMM
1986 200	8:41: 2	4.05 +/-	0.20	264.0 +/-	1.0	SMM
1986 200	9:38: 2	4.50 +/-	0.25	264.0 +/-	1.0	SMM

```
*****************************************
 Structure being measured:
Southern Edge of Front
*****************************************


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


START TIME:

Event began at t = 0 + -0.514E+03 +/-  0.792E+01 [minutes]
In more convenient units:
Event began at DOY 199 18:26 +/-  0.792E+01 [minutes]


Origin defined at DOY200  3: 0

RADIAL INFORMATION:

RADIAL VELOCITY =    41. +/-    4. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

    c(1) =   0.281E+01 +/-   0.791E-01 [solar radii]
    c(2) =   0.352E-02 +/-   0.380E-03 [radii/min]
    c(2) =   0.409E+02 +/-   0.441E+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)= 0.11602E+00 [radii] see Bevington pg. 114
            error in c(2)= 0.45914E-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) = 264. +/- 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 3:39 = 0.000E+00 km/sec
The TOTAL velocity at 3:39 = 41. km/sec

The TANGENTIAL velocity at 4:56 = 0.000E+00 km/sec
The TOTAL velocity at 4:56 = 41. km/sec

The TANGENTIAL velocity at 5:33 = 0.000E+00 km/sec
The TOTAL velocity at 5:33 = 41. km/sec

The TANGENTIAL velocity at 6:30 = 0.000E+00 km/sec
The TOTAL velocity at 6:30 = 41. km/sec

The TANGENTIAL velocity at 7: 7 = 0.000E+00 km/sec
The TOTAL velocity at 7: 7 = 41. km/sec

The TANGENTIAL velocity at 8: 4 = 0.000E+00 km/sec
The TOTAL velocity at 8: 4 = 41. km/sec

The TANGENTIAL velocity at 8:41 = 0.000E+00 km/sec
The TOTAL velocity at 8:41 = 41. km/sec

The TANGENTIAL velocity at 9:38 = 0.000E+00 km/sec
The TOTAL velocity at 9:38 = 41. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.48
Standard Deviation in start time measurement = 0.113E+03
Error in time = 0.10187E+03 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.113E-01
Reduced Chi Squared = 0.132E+00
Chi Squared = 0.794E+00
The probability for exceeding chi square = 0.100E+01

The correlation coefficient =   0.964E+00
The probability that no LINEAR correlation exists between the variables =   0.1109E-03
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
1986 200  3:39:31  3.10 +/- 0.15   264.0 +/-  1.0     SMM
1986 200  4:56: 3  3.20 +/- 0.10   264.0 +/-  1.0     SMM
1986 200  5:33: 3  3.30 +/- 0.15   264.0 +/-  1.0     SMM
1986 200  6:30: 3  3.50 +/- 0.15   264.0 +/-  1.0     SMM
1986 200  7: 7: 3  3.55 +/- 0.15   264.0 +/-  1.0     SMM
1986 200  8: 4: 2  3.90 +/- 0.20   264.0 +/-  1.0     SMM
1986 200  8:41: 2  4.05 +/- 0.20   264.0 +/-  1.0     SMM
1986 200  9:38: 2  4.50 +/- 0.25   264.0 +/-  1.0     SMM


******************************************
 Structure being measured:
Southern Edge of Front
******************************************


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


START TIME:


tstart=DOY200 3:11 from derivative = 0
Event begins at   3.10 Solar Radii
 Origin defined at DOY200  3: 0


RADIAL INFORMATION:


RADIAL ACCELERATION =  0.352E-02 +/-  0.447E-03 km/sec**2


The computed RADIAL coefficients and errors FROM NLLST2 are:


c(1) =    0.310E+01 +/-   0.449E-01 [solar radii]
c(2) =   -0.218E-03 +/-   0.491E-03 [radii/min]
c(2) =   -0.253E+01 +/-   0.569E+01 [km/sec]
c(3) =    0.910E-05 +/-   0.116E-05 [radii/min**2]
c(3) =    0.352E-02 +/-   0.447E-03 [km/sec**2]


The computed ERRORS in coefficients [BEVINGTON] are:


    Approximate error in c(1) =  0.54869E-01 [radii] Bevington pg 154 (8-30)
        Exact error in c(1) =  0.66647E-02 [radii] Bevington pg 154 (8-28)
    Approximate error in c(2) =  0.55446E-03 [radii/min] Bevington pg 154 (8-30)
        Exact error in c(2) =  0.79149E-04 [radii/min] Bevington pg 154 (8-28)
    Approximate error in c(3) =  0.12218E-05 [radii/min**]  Bevington pg 154 (8-30)
```

Exact error in c(3) = 0.20623E-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) = 264. +/-   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 3:39 = 0.000E+00 km/sec
The TOTAL velocity at 3:39 =   6. km/sec

The TANGENTIAL velocity at 4:56 = 0.000E+00 km/sec
The TOTAL velocity at 4:56 =   22. km/sec

The TANGENTIAL velocity at 5:33 = 0.000E+00 km/sec
The TOTAL velocity at 5:33 =   30. km/sec

The TANGENTIAL velocity at 6:30 = 0.000E+00 km/sec
The TOTAL velocity at 6:30 =   42. km/sec

The TANGENTIAL velocity at 7: 7 = 0.000E+00 km/sec
The TOTAL velocity at 7: 7 =   50. km/sec

The TANGENTIAL velocity at 8: 4 = 0.000E+00 km/sec
The TOTAL velocity at 8: 4 =   62. km/sec

The TANGENTIAL velocity at 8:41 = 0.000E+00 km/sec
The TOTAL velocity at 8:41 =   69. km/sec

The TANGENTIAL velocity at 9:38 = 0.000E+00 km/sec
The TOTAL velocity at 9:38 =   81. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.48
Standard Deviation in start time measurement =   0.113E+03
Value of reduced Chi Squared returned from nllst2 = 0.116E-02
Reduced Chi Squared = 0.989E-02
Chi Squared = 0.495E-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 =   0.9226E+00
The correlation between the data and the time**2 term =   0.9092E+00
The correlation between the data and the complete equation of motion =   0.9917E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]