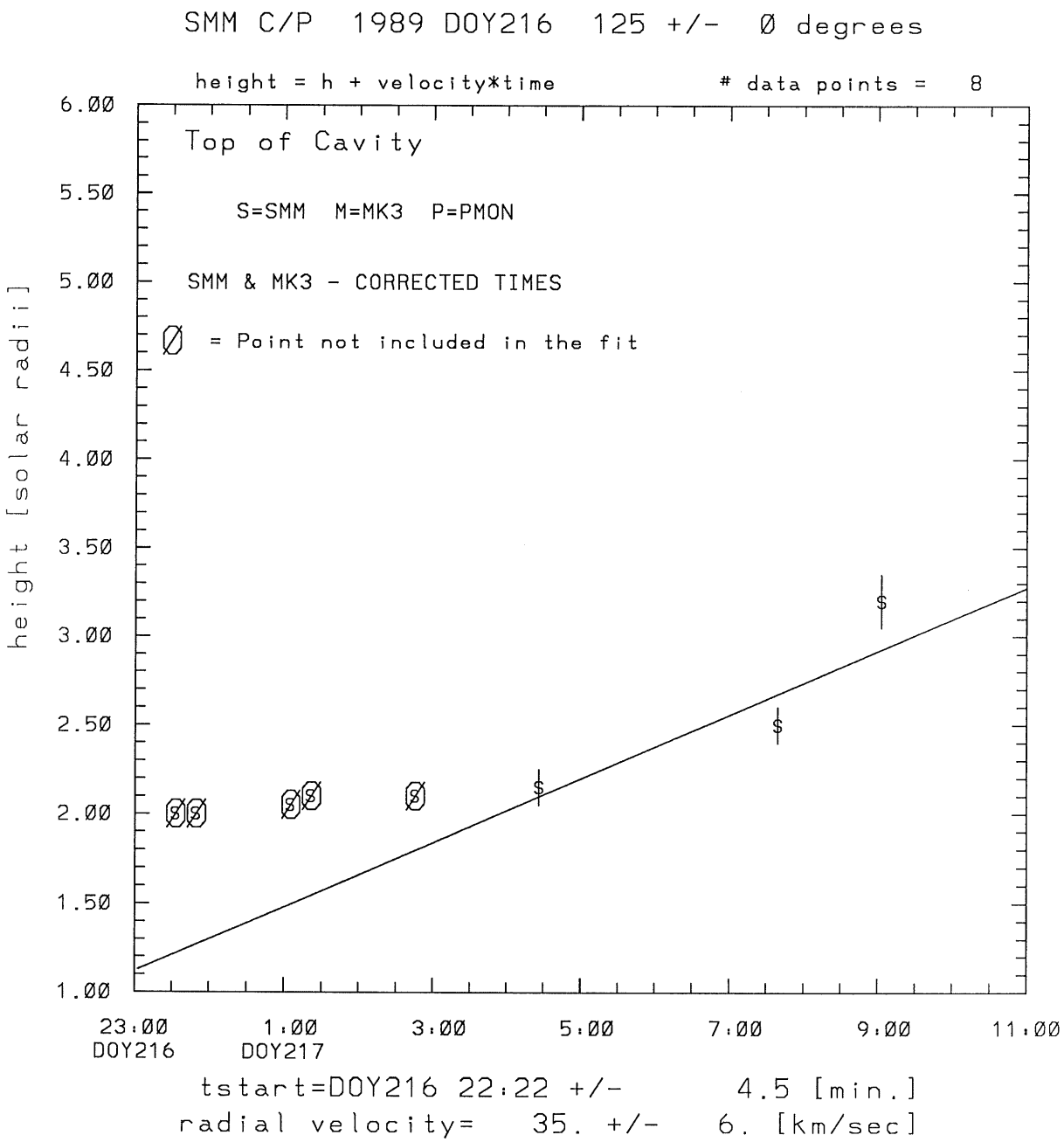
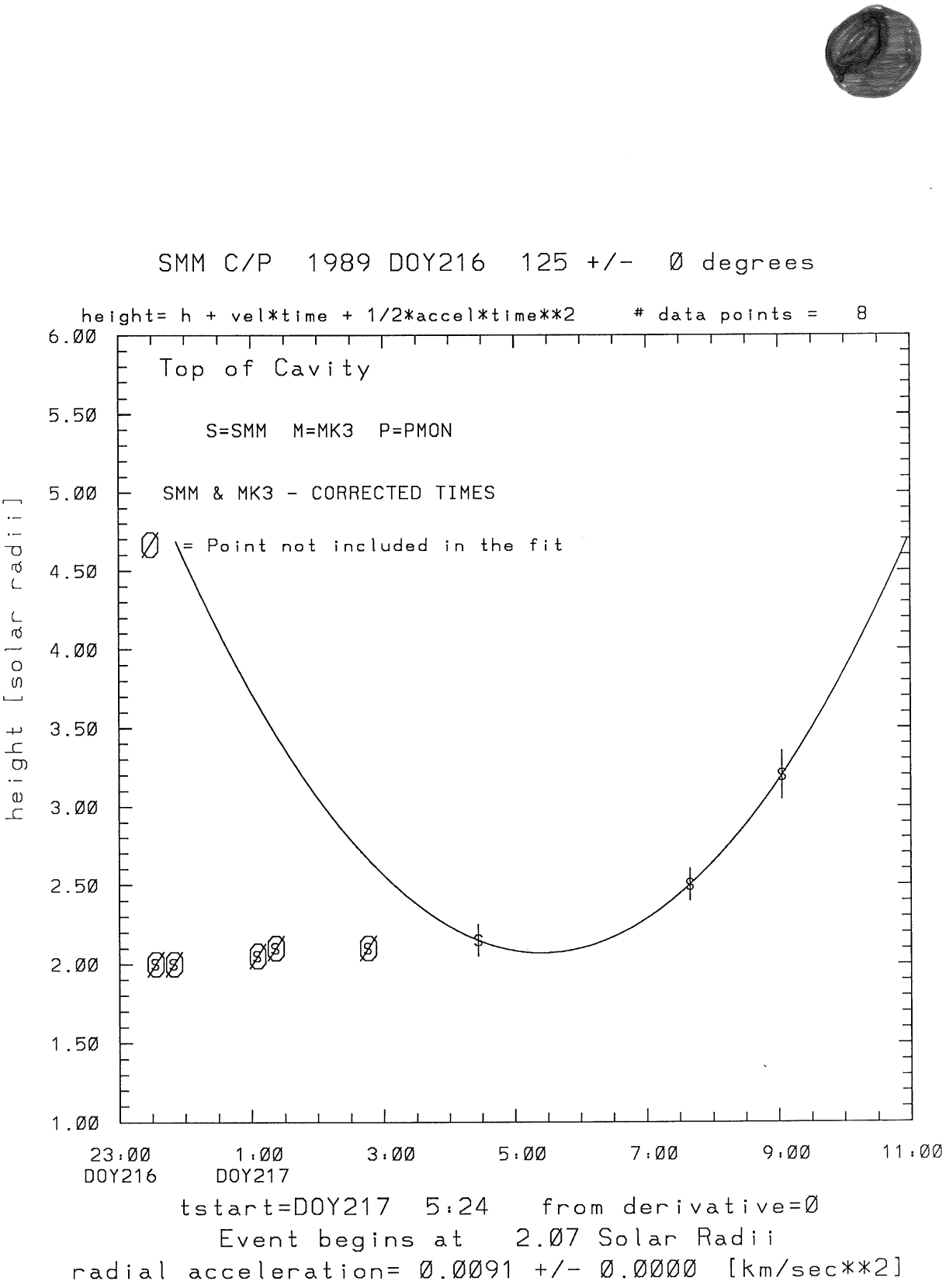
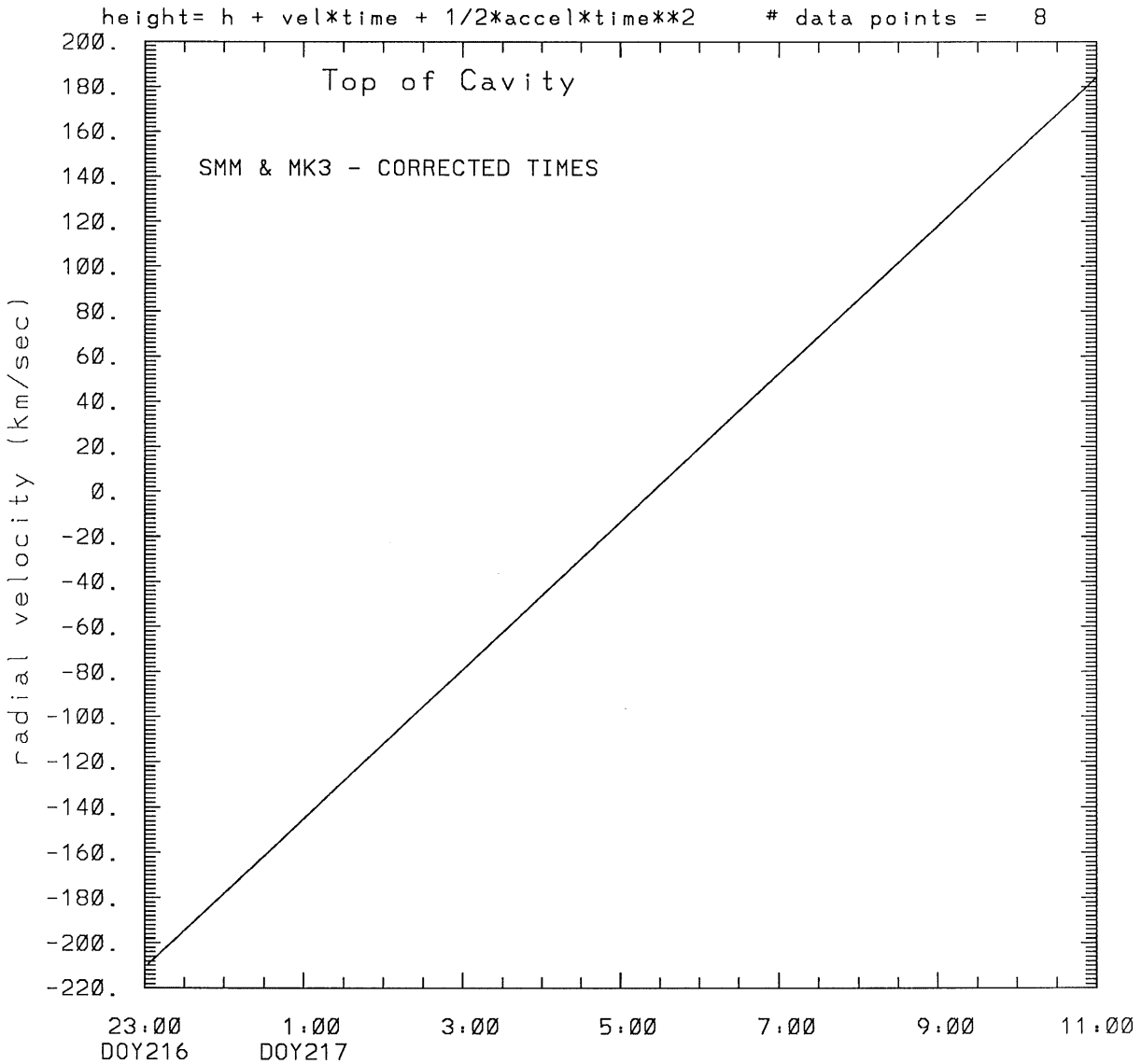

SMM C/P 1989 DOY216 125 +/- Ø degrees
height = h + velocity*time
# data points = 8
Top of Cavity
S=SMM M=MK3 P=PMON
SMM & MK3 - CORRECTED TIMES
Ø = Point not included in the fit
height [solar radii]
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
23:00
DOY216
1:00
DOY217
3:00
5:00
7:00
9:00
11:00
tstart=DOY216 22:22 +/- 4.5 [min.]
radial velocity= 35. +/- 6. [km/sec]


SMM C/P 1989 DOY216 125 +/- Ø degrees
height= h + vel*time + 1/2*accel*time**2 # data points = 8
Top of Cavity
S=SMM M=MK3 P=PMON
SMM & MK3 - CORRECTED TIMES
= Point not included in the fit
height [solar radii]
6.ØØ
5.5Ø
5.ØØ
4.5Ø
4.ØØ
3.5Ø
3.ØØ
2.5Ø
2.ØØ
1.5Ø
1.ØØ
23:ØØ DOY216
1:ØØ DOY217
3:ØØ
5:ØØ
7:ØØ
9:ØØ
11:ØØ
tstart=DOY217 5:24 from derivative=Ø
Event begins at 2.Ø7 Solar Radii
radial acceleration= Ø.ØØ91 +/- Ø.ØØØØ [km/sec**2]

SMM C/P 1989 DOY216 125 +/- Ø degrees



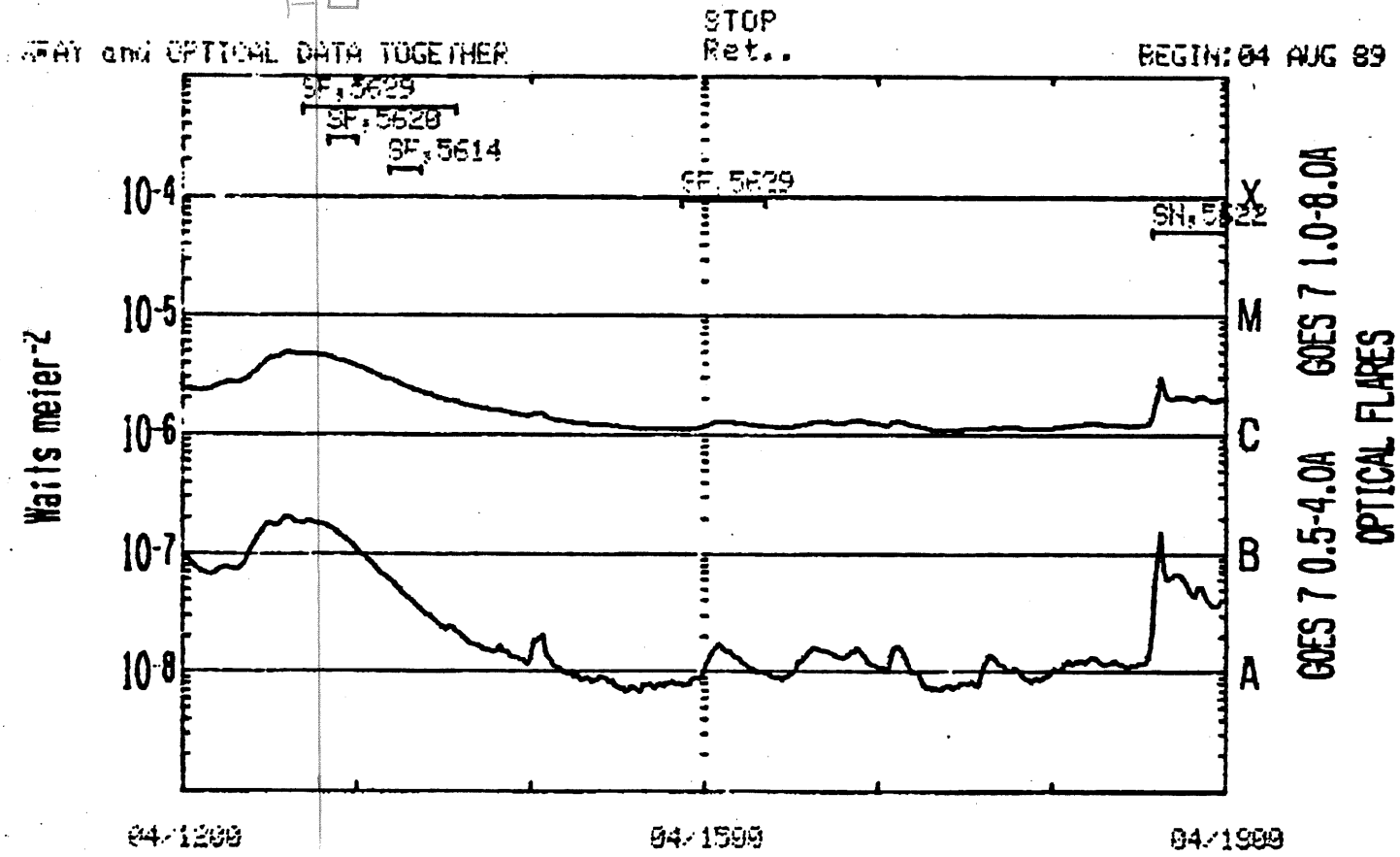
tstart=DOY217 5:24 from derivative=Ø

Event begins at 2.Ø7 Solar Radii

radial acceleration=Ø.914E-Ø2 km/sec**2

1989 DOY 216

Top of Cavity center = 126°
[12.48] 1st order
2nd order on DOY 217



SAA's

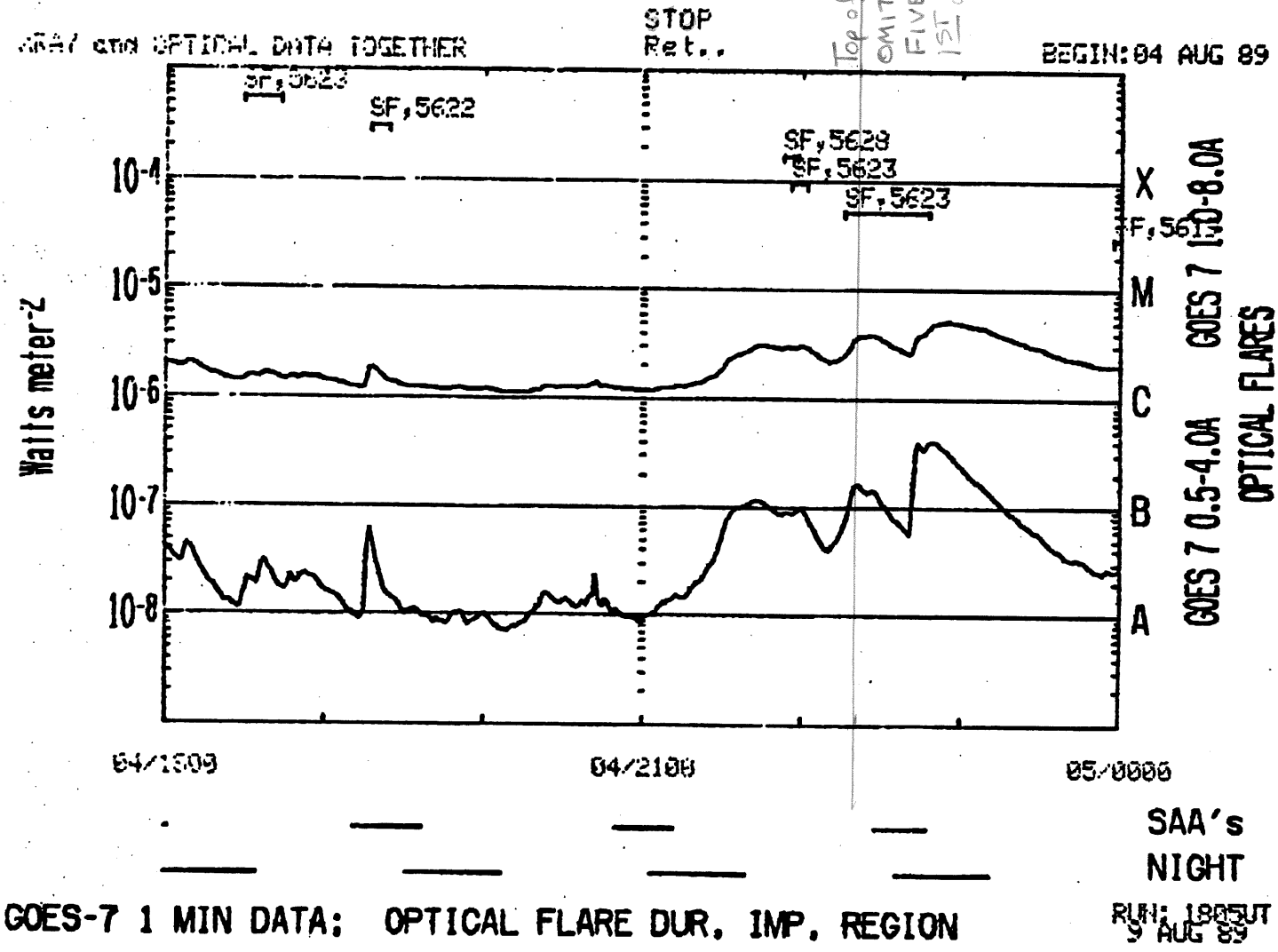
NIGHT

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

RUN: 1801UT 9 AUG 89

see next 3 pages

1989 DOY 216



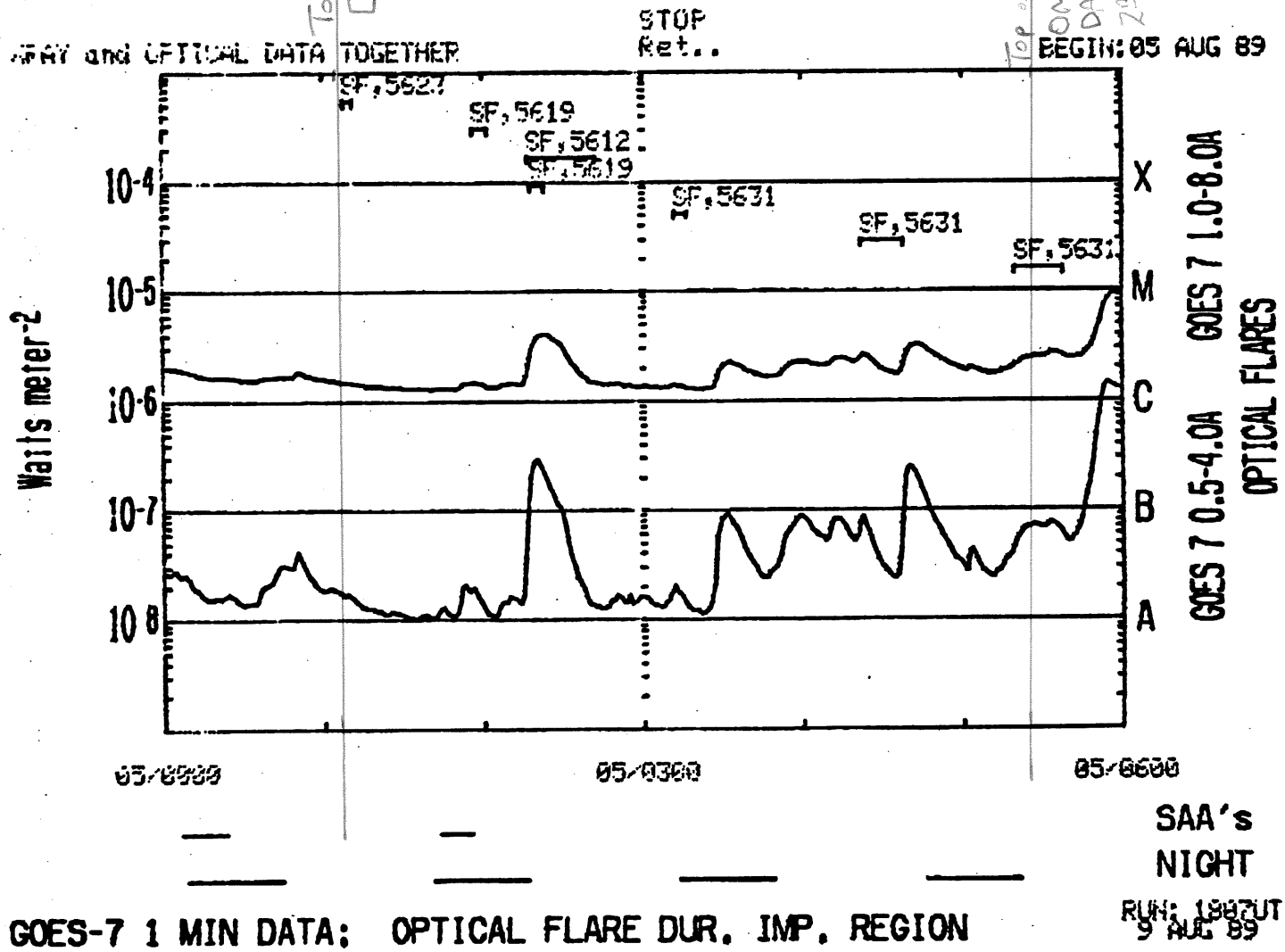
GOES-7 1 MIN DATA: OPTICAL FLARE DUR, IMP, REGION

RUN: 1805UT
9 AUG 89

1989 DOY 217

Top of Cavity, 2nd order [1:06]

Top of Cavity [5:24] OMITTING FIRST FIVE DATA POINTS 2nd order



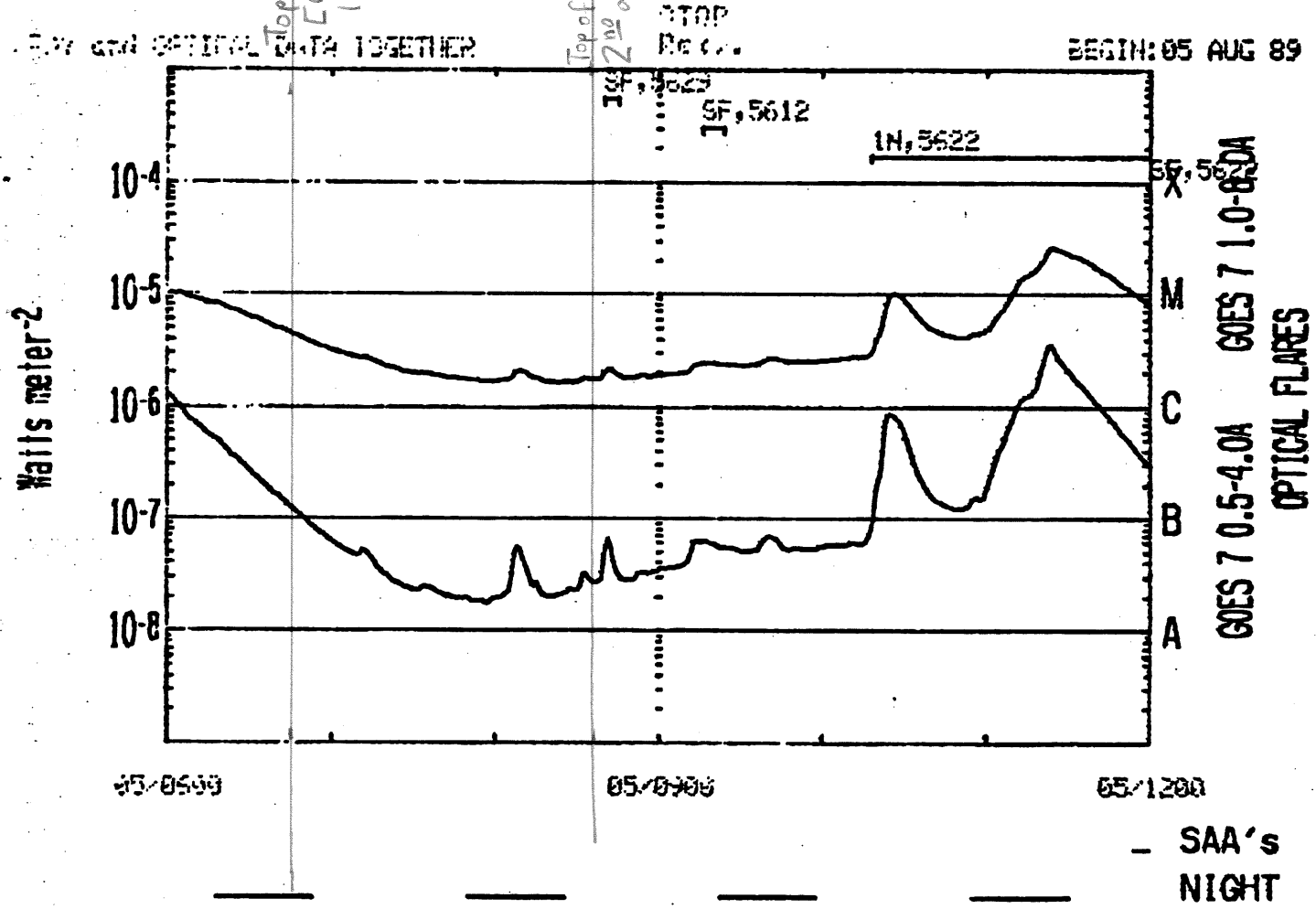
GOES-7 1 MIN DATA: OPTICAL FLARE DUR. IMP. REGION

RUN: 1807UT 9 AUG 89

1989 Doy 217

Top of Inner Cavity after Prominence Measured @ 138°
[6:47] 1st order

Top of Inner Cavity
2nd order [8:36]



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

RUN: 1805UT
9 AUG 89

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1989	216	23:48:53	2.00	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989	216	23:32:22	2.00	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989	217	1: 4:41	2.05	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989	217	1:21:11	2.10	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989	217	2:45:15	2.10	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989	217	4:26:21	2.15 +/-	0.10	125.0 +/-	0.5	SMM
1989	217	7:39:15	2.50 +/-	0.10	125.0 +/-	0.5	SMM
1989	217	9: 3: 1	3.20 +/-	0.15	125.0 +/-	1.0	SMM

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

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.399E+02 +/- 0.449E+01 [minutes]
In more convenient units:
Event began at DOY 216 22:22 +/- 0.449E+01 [minutes]

Origin defined at DOY216 23: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 35. +/- 6. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.112E+01 +/- 0.263E+00 [solar radii]
c(2) = 0.300E-02 +/- 0.560E-03 [radii/min]
c(2) = 0.347E+02 +/- 0.650E+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)= 0.32721E+00 [radii] see Bevington pg. 114
error in c(2)= 0.10162E-02 [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) = 125. +/- 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 23:48 = 0. km/sec
The TOTAL velocity at 23:48 = 35. km/sec

The TANGENTIAL velocity at 23:32 = 0. km/sec
The TOTAL velocity at 23:32 = 35. km/sec

The TANGENTIAL velocity at 1: 4 = 0. km/sec
The TOTAL velocity at 1: 4 = 35. km/sec

The TANGENTIAL velocity at 1:21 = 0. km/sec
The TOTAL velocity at 1:21 = 35. km/sec

The TANGENTIAL velocity at 2:45 = 0. km/sec
The TOTAL velocity at 2:45 = 35. km/sec

The TANGENTIAL velocity at 4:26 = 0. km/sec
The TOTAL velocity at 4:26 = 35. km/sec

The TANGENTIAL velocity at 7:39 = 0. km/sec
The TOTAL velocity at 7:39 = 35. km/sec

The TANGENTIAL velocity at 9: 3 = 0. km/sec
The TOTAL velocity at 9: 3 = 35. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.41
Standard Deviation in start time measurement = 0.200E+03
Error in time = 0.46929E+03 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.312E-01
Reduced Chi Squared = 0.873E+00
Chi Squared = 0.524E+01
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.886E+00
The probability that no LINEAR correlation exists between the variables = 0.3361E-02
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

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

****
INPUT:
****

year doy	time	radii	error in radius	angle	error in angle	datatype
1989 216	23:48:53	2.00	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989 216	23:32:22	2.00	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989 217	1: 4:41	2.05	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989 217	1:21:11	2.10	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989 217	2:45:15	2.10	-----	125.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1989 217	4:26:21	2.15 +/- 0.10		125.0 +/-	0.5	SMM
1989 217	7:39:15	2.50 +/- 0.10		125.0 +/-	0.5	SMM
1989 217	9: 3: 1	3.20 +/- 0.15		125.0 +/-	1.0	SMM

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

****
OUTPUT:
****

START TIME:

tstart=DOY217 5:24 from derivative = 0
Event begins at 2.07 Solar Radii
Origin defined at DOY216 23: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.914E-02 +/- 0.139E-07 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.556E+01 +/- 0.682E-05 [solar radii]
c(2) = -0.182E-01 +/- 0.322E-07 [radii/min]
c(2) = -0.211E+03 +/- 0.373E-03 [km/sec]
c(3) = 0.236E-04 +/- 0.358E-10 [radii/min**2]
c(3) = 0.914E-02 +/- 0.139E-07 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.18040E+01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.53978E-05 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.15961E-01 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.25231E-07 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.24667E-04 [radii/min**] Bevington pg 154 (8-30)

Exact error in c(3) = 0.27081E-10 [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) = 125. +/- 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 23:48 = 0. km/sec
The TOTAL velocity at 23:48 = -184. km/sec

The TANGENTIAL velocity at 23:32 = 0. km/sec
The TOTAL velocity at 23:32 = -193. km/sec

The TANGENTIAL velocity at 1: 4 = 0. km/sec
The TOTAL velocity at 1: 4 = -142. km/sec

The TANGENTIAL velocity at 1:21 = 0. km/sec
The TOTAL velocity at 1:21 = -133. km/sec

The TANGENTIAL velocity at 2:45 = 0. km/sec
The TOTAL velocity at 2:45 = -87. km/sec

The TANGENTIAL velocity at 4:26 = 0. km/sec
The TOTAL velocity at 4:26 = -32. km/sec

The TANGENTIAL velocity at 7:39 = 0. km/sec
The TOTAL velocity at 7:39 = 74. km/sec

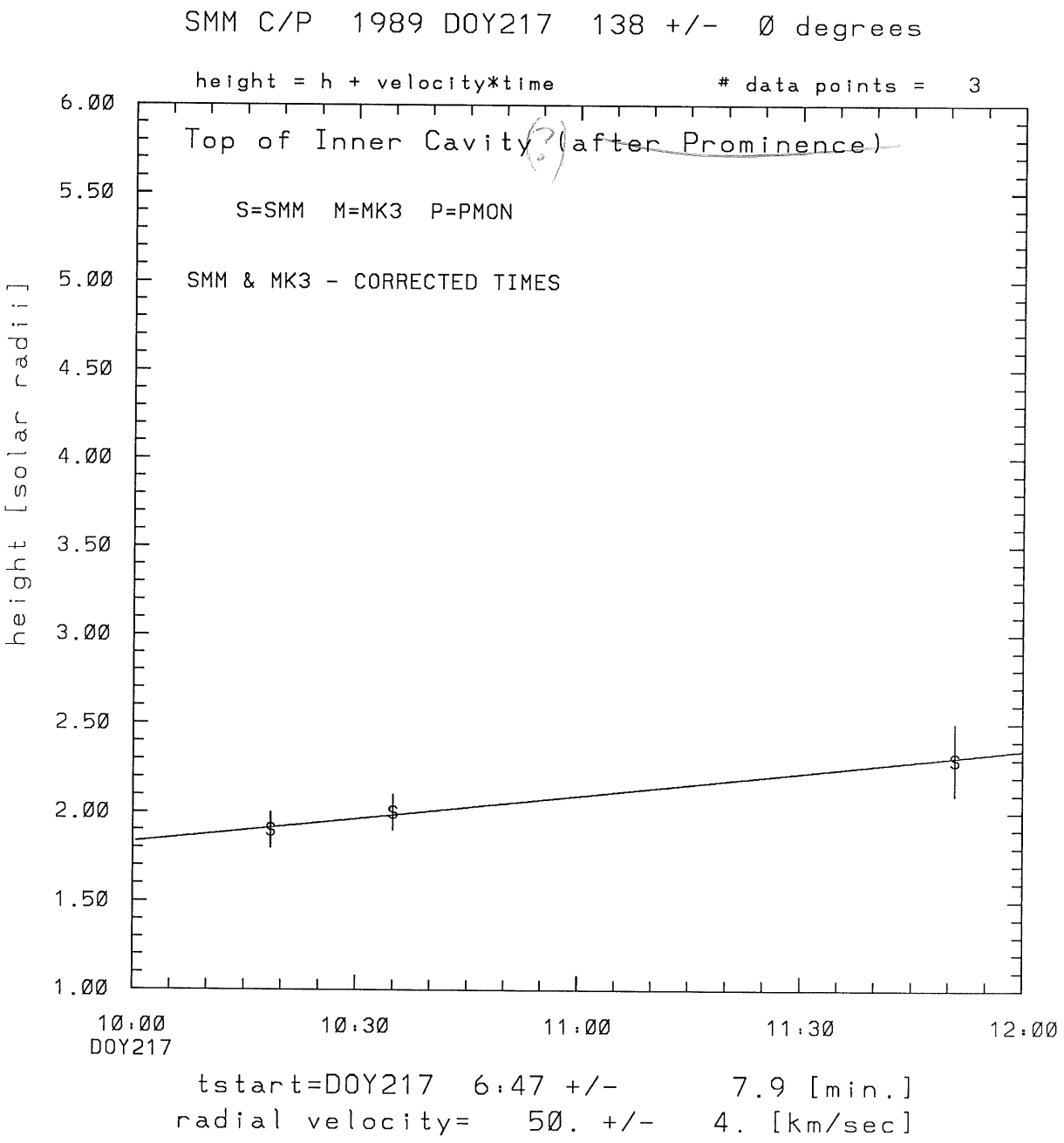
The TANGENTIAL velocity at 9: 3 = 0. km/sec
The TOTAL velocity at 9: 3 = 120. km/sec

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

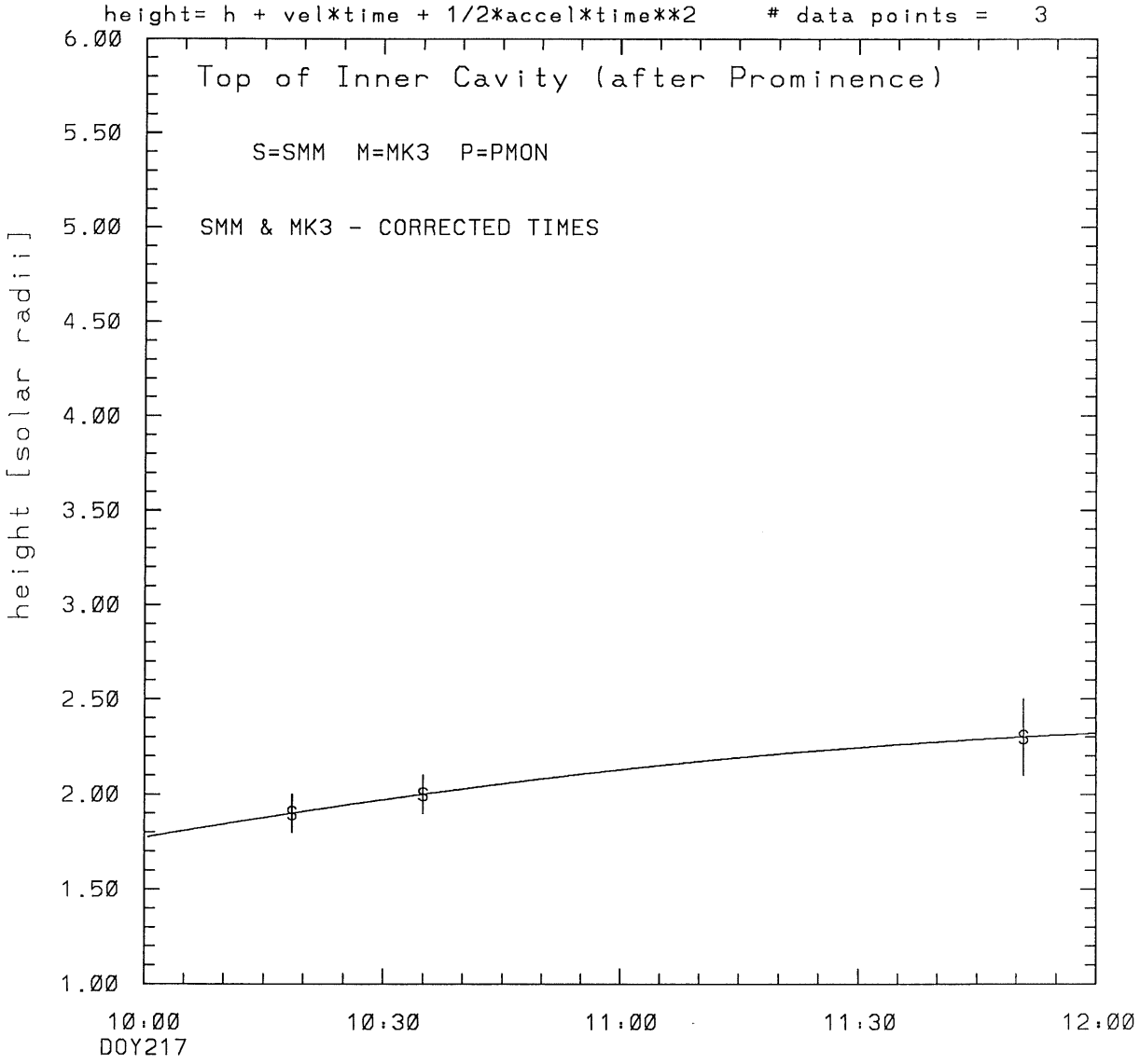
Fit is ok [ier=1]

Standard Deviation in the height = 0.41
Standard Deviation in start time measurement = 0.200E+03
Value of reduced Chi Squared returned from nllst2 = 0.502E-12
Reduced Chi Squared = 0.849E+01
Chi Squared = 0.424E+02
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 = 0.9499E+00
The correlation between the data and the time**2 term = 0.1076E+01
0The correlation between the data and the complete equation of motion = -0.3681E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

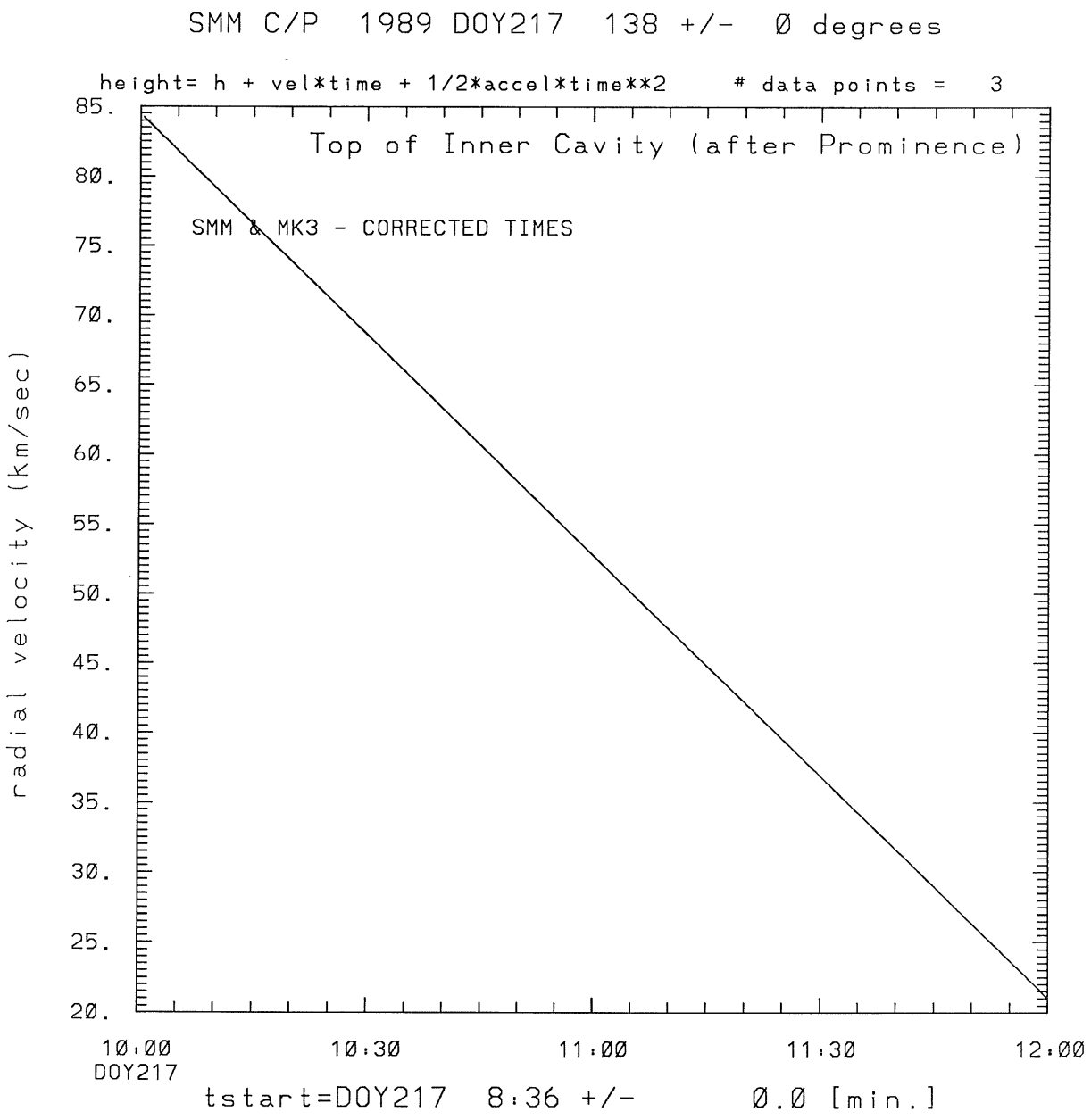

SMM C/P 1989 DOY217 138 +/- Ø degrees
height = h + velocity*time
# data points = 3
Top of Inner Cavity (?) (after Prominence)
S=SMM M=MK3 P=PMON
SMM & MK3 - CORRECTED TIMES
height [solar radii]
6.ØØ
5.5Ø
5.ØØ
4.5Ø
4.ØØ
3.5Ø
3.ØØ
2.5Ø
2.ØØ
1.5Ø
1.ØØ
10:ØØ
DOY217
10:3Ø
11:ØØ
11:3Ø
12:ØØ
tstart=DOY217 6:47 +/- 7.9 [min.]
radial velocity= 5Ø. +/- 4. [km/sec]

SMM C/P 1989 DOY217 138 +/- Ø degrees



tstart=DOY217 8:36 +/- Ø.Ø [min.]

radial acceleration=-Ø.ØØ88 +/- Ø.ØØØØ [km/sec**2]


SMM C/P 1989 DOY217 138 +/- Ø degrees
height= h + vel*time + 1/2*accel*time**2 # data points = 3
Top of Inner Cavity (after Prominence)
SMM & MK3 - CORRECTED TIMES
radial velocity (km/sec)
85.
80.
75.
70.
65.
60.
55.
50.
45.
40.
35.
30.
25.
20.
10:00
DOY217
10:30
11:00
11:30
12:00
tstart=DOY217 8:36 +/- Ø.Ø [min.]
radial acceleration=-.881E-Ø2 km/sec**2

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1989	217	10:18:34	1.90	+/- 0.10	138.0	+/- 0.5	SMM
1989	217	10:35: 4	2.00	+/- 0.10	138.0	+/- 0.5	SMM
1989	217	11:50:53	2.30	+/- 0.20	138.0	+/- 0.5	SMM

****
Structure being measured:
Top of Inner Cavity (after Prominence)
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.193E+03 +/- 0.794E+01 [minutes]
In more convenient units:
Event began at DOY 217 6:47 +/- 0.794E+01 [minutes]

Origin defined at DOY217 10: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 50. +/- 4. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.183E+01 +/- 0.165E-01 [solar radii]
c(2) = 0.431E-02 +/- 0.363E-03 [radii/min]
c(2) = 0.501E+02 +/- 0.422E+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)= 0.22837E-01 [radii] see Bevington pg. 114
error in c(2)= 0.33586E-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) = 138. +/- 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 10:18 = 0. km/sec
The TOTAL velocity at 10:18 = 50. km/sec

The TANGENTIAL velocity at 10:35 = 0. km/sec
The TOTAL velocity at 10:35 = 50. km/sec

The TANGENTIAL velocity at 11:50 = 0. km/sec
The TOTAL velocity at 11:50 = 50. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.21
Standard Deviation in start time measurement = 0.402E+02
Error in time = 0.54197E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.301E-03
Reduced Chi Squared = 0.105E-02
Chi Squared = 0.105E-02
The probability for exceeding chi square = 0.986E+00

The correlation coefficient = 0.997E+00
The probability that no LINEAR correlation exists between the variables = 0.4721E-01
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1989	217	10:18:34	1.90	+/- 0.10	138.0	+/- 0.5	SMM
1989	217	10:35: 4	2.00	+/- 0.10	138.0	+/- 0.5	SMM
1989	217	11:50:53	2.30	+/- 0.20	138.0	+/- 0.5	SMM

****
Structure being measured:
Top of Inner Cavity (after Prominence)
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.840E+02 +/- 0.000E+00 [minutes]
In more convenient units:
Event began at DOY 217 8:36 +/- 0.000E+00 [minutes]

Origin defined at DOY217 10: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.881E-02 +/- 0.344E-05 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.177E+01 +/- 0.252E-04 [solar radii]
c(2) = 0.728E-02 +/- 0.118E-05 [radii/min]
c(2) = 0.845E+02 +/- 0.136E-01 [km/sec]
c(3) = -0.228E-04 +/- 0.890E-08 [radii/min**2]
c(3) = -0.881E-02 +/- 0.344E-05 [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) = 138. +/- 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 10:18 = 0. km/sec
The TOTAL velocity at 10:18 = 75. km/sec

The TANGENTIAL velocity at 10:35 = 0. km/sec
The TOTAL velocity at 10:35 = 66. km/sec

The TANGENTIAL velocity at 11:50 = 0. km/sec
The TOTAL velocity at 11:50 = 26. 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!