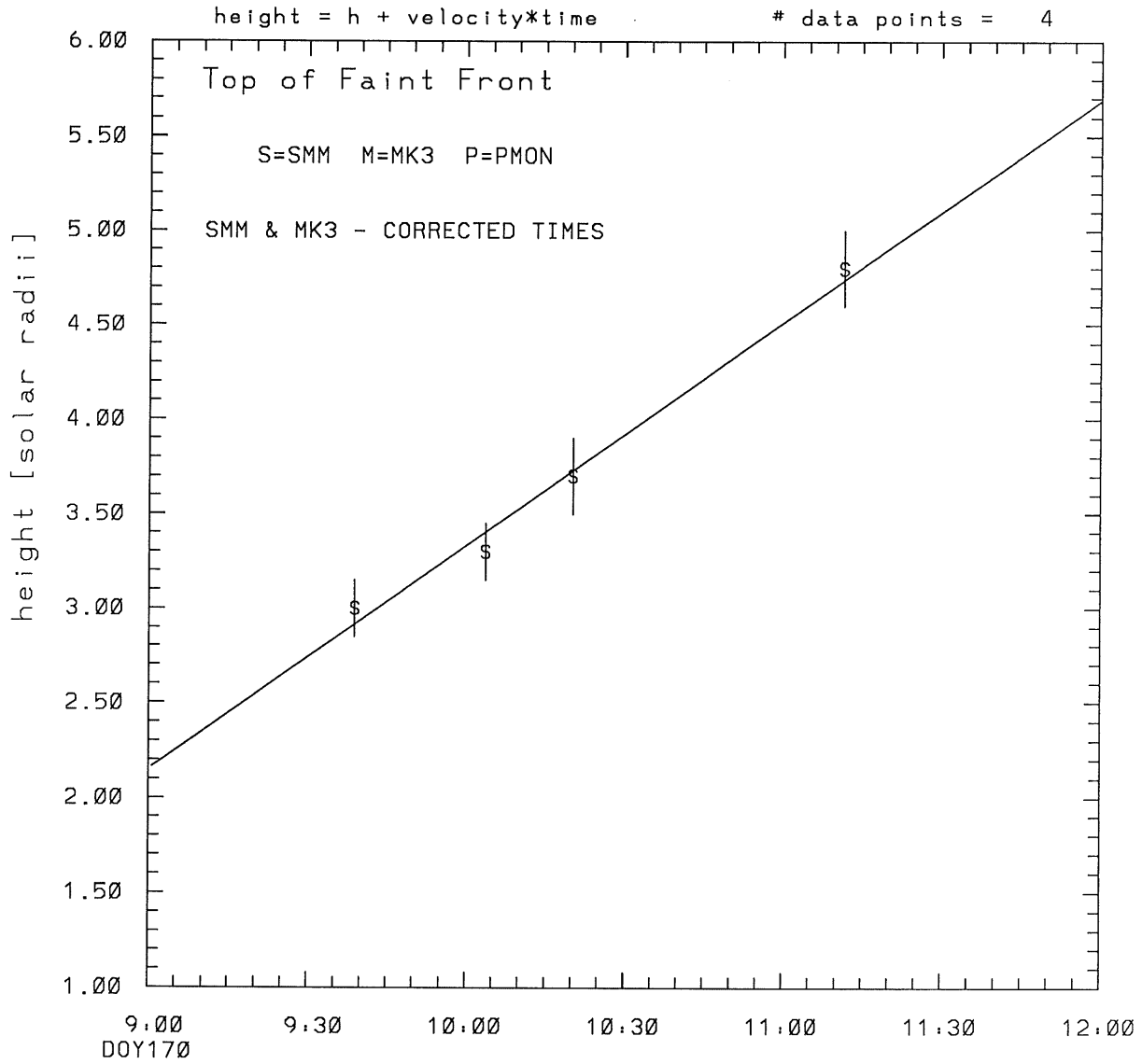
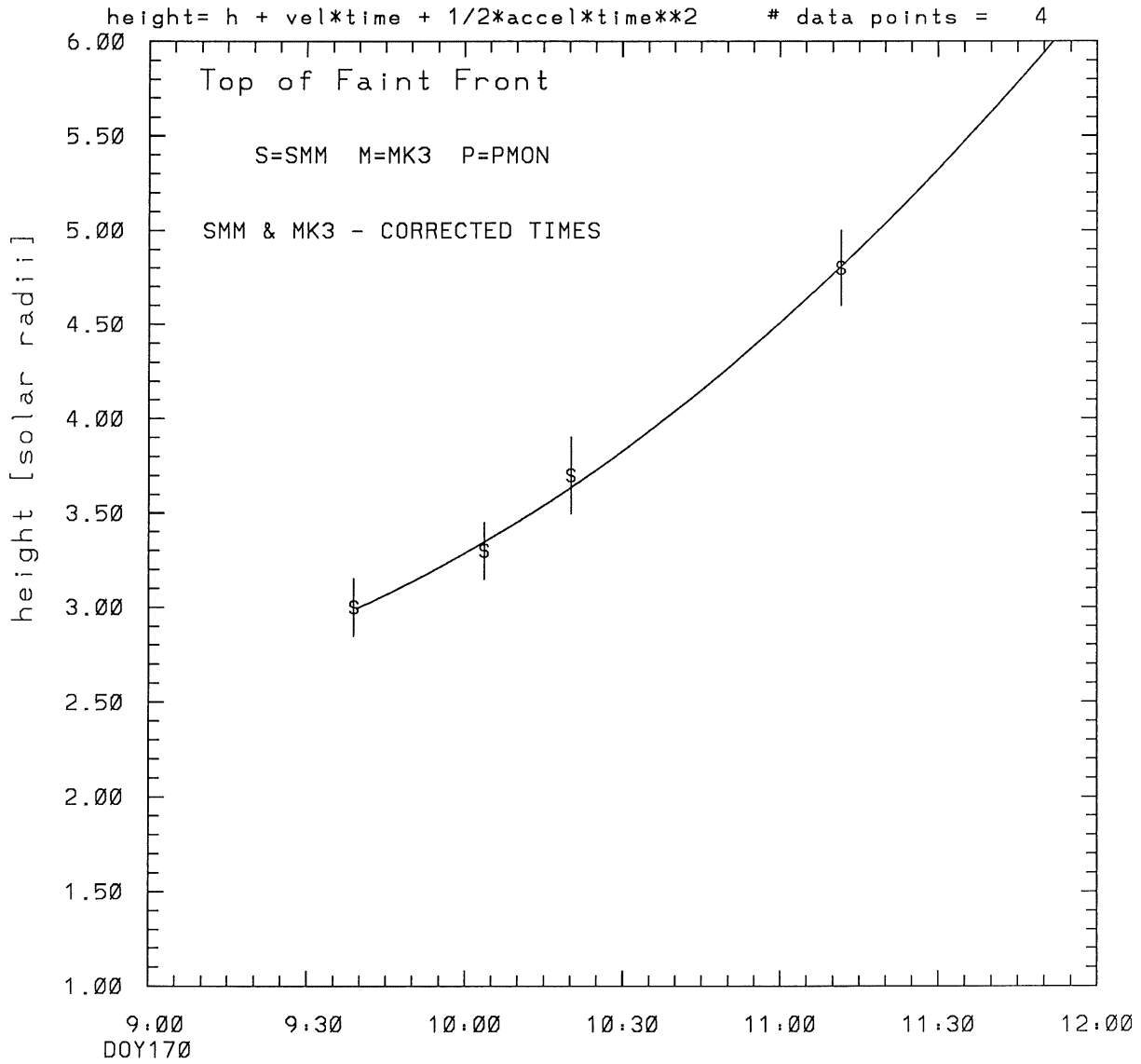


SMM C/P 1989 DOY170 272 +/- 0 degrees



tstart=DOY170 8: 2 +/- 2.8 [min.]
radial velocity= 228. +/- 17. [km/sec]

SMM C/P 1989 DOY170 272 +/- 0 degrees

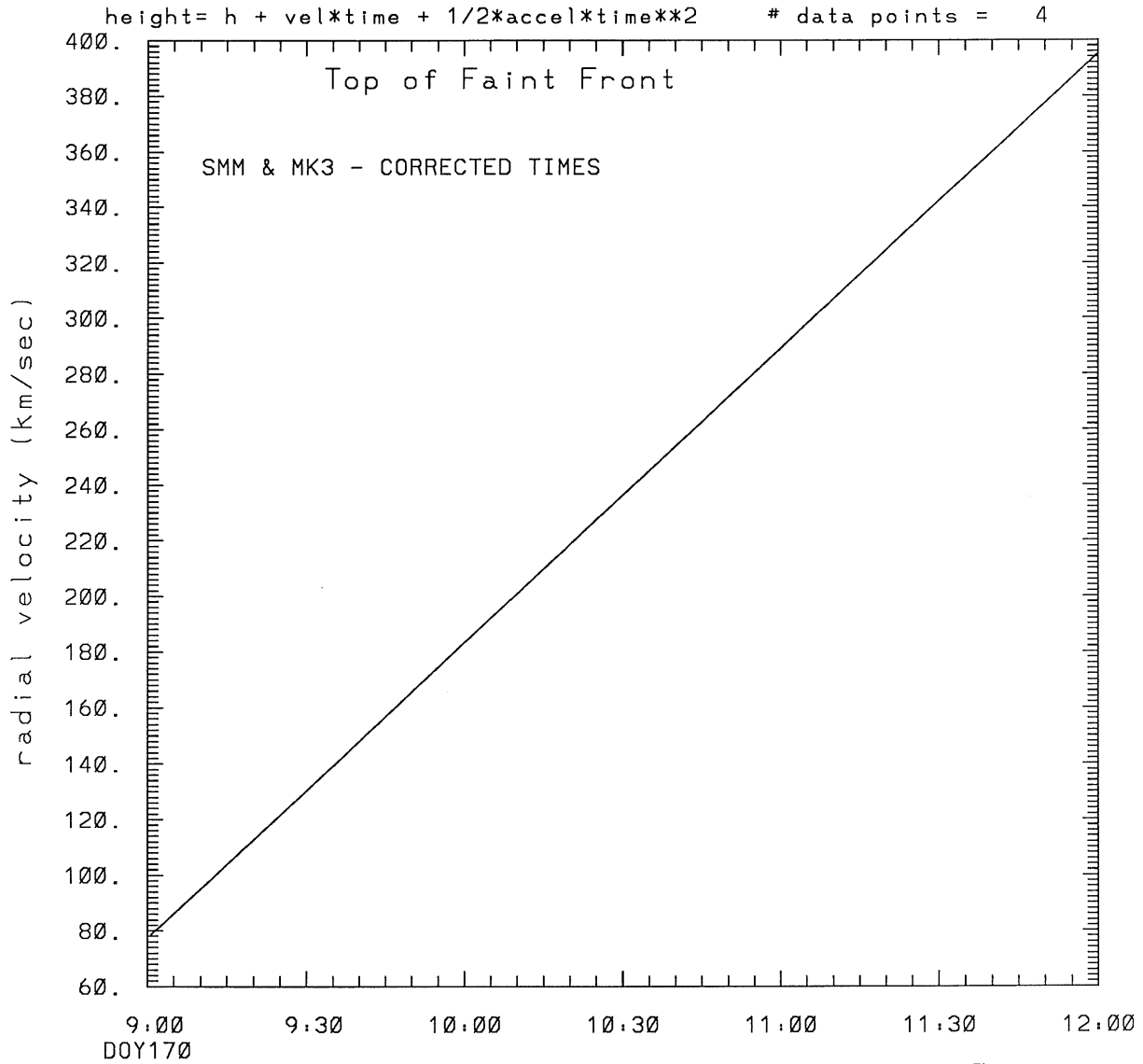


tstart=DOY170 8:17 from derivative=0

Event begins at 2.47 Solar Radii

radial acceleration = 0.0294 +/- 0.0112 [km/sec**2]

SMM C/P 1989 DOY170 272 +/- 0 degrees



tstart=DOY170 8:17 from derivative=0

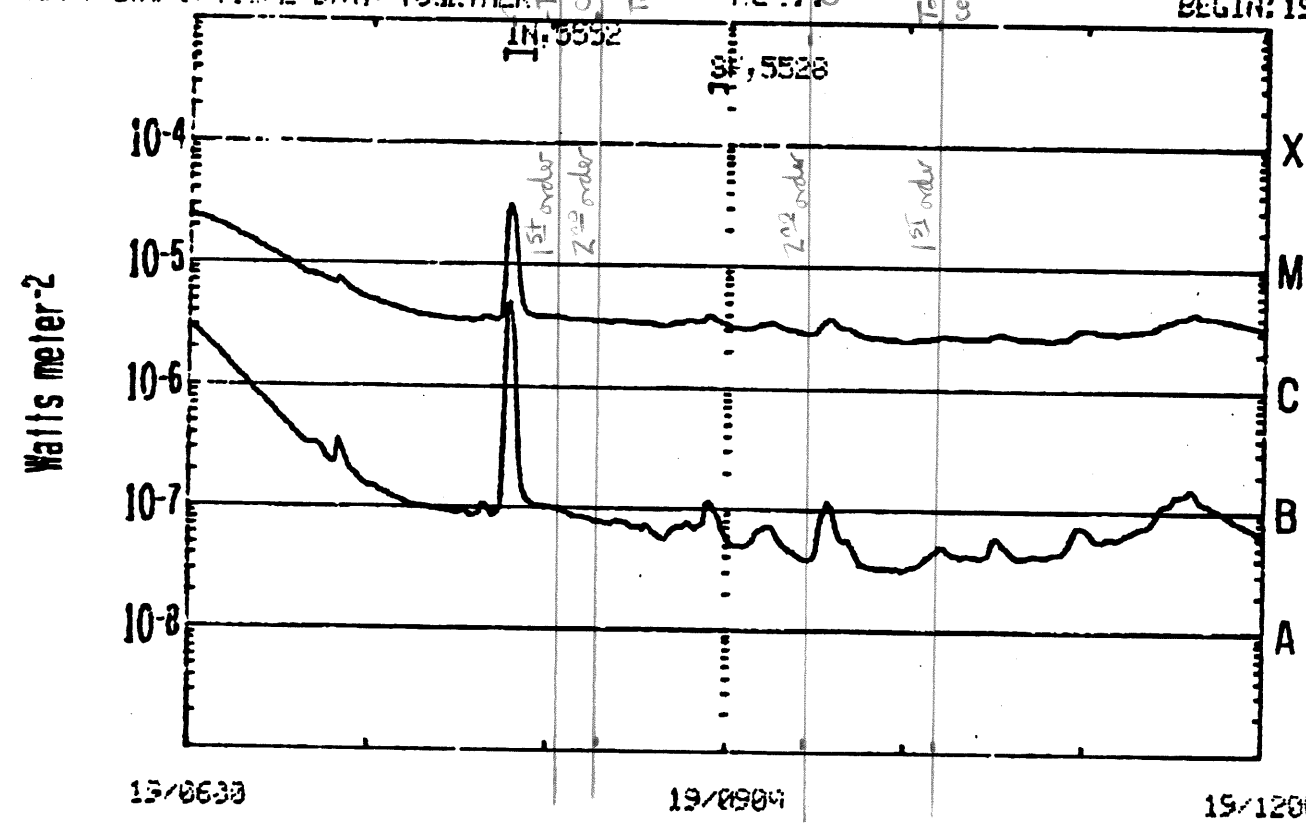
Event begins at 2.47 Solar Radii

radial acceleration=0.294E-01 km/sec**2

1989 boy 170

PHY and OPTICAL DATA TOGETHER

BEGIN: 19 JUN 89



GOES 7 0.5-4.0A GOES 7 1.0-8.0A
OPTICAL FLARES

19/0630

19/0904

19/1200

SAA's NIGHT

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

END: 1509UT
24 JUN 89

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in	angle	angle	datatype
1989	170	9:38:57	3.00	+/- 0.15	272.0	+/- 1.0	SMM	
1989	170	10: 3:43	3.30	+/- 0.15	272.0	+/- 1.0	SMM	
1989	170	10:20:13	3.70	+/- 0.20	272.0	+/- 1.0	SMM	
1989	170	11:11:36	4.80	+/- 0.20	272.0	+/- 1.0	SMM	

Structure being measured:

Top of Faint Front

OUTPUT:

START TIME:

Event began at $t = 0 + -0.584E+02 +/- 0.276E+01$ [minutes]

In more convenient units:

Event began at DOY 170 8: 2 +/- 0.276E+01 [minutes]

Origin defined at DOY170 9: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 228. +/- 17. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.215E+01 +/- 0.113E+00$ [solar radii]
 $c(2) = 0.197E-01 +/- 0.145E-02$ [radii/min]
 $c(2) = 0.228E+03 +/- 0.169E+02$ [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 $c(1) = 0.13308E+00$ [radii] see Bevington pg. 114

error in $c(2) = 0.15541E-02$ [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) = 272. +/- 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 9:38 = 0. km/sec

The TOTAL velocity at 9:38 = 228. km/sec

The TANGENTIAL velocity at 10: 3 = 0. km/sec

The TOTAL velocity at 10: 3 = 228. km/sec

The TANGENTIAL velocity at 10:20 = 0. km/sec

The TOTAL velocity at 10:20 = 228. km/sec

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

The TOTAL velocity at 11:11 = 228. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.79

Standard Deviation in start time measurement = 0.339E+02

Error in time = 0.75808E+01 using best fit method

See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.865E-02

Reduced Chi Squared = 0.228E-01

Chi Squared = 0.457E-01

The probability for exceeding chi square = 0.991E+00

The correlation coefficient = 0.994E+00

The probability that no LINEAR correlation exists between the variables = 0.5868E-02

SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

This is a 2 order run

INPUT:

year	doy	time	radii	radius	error in	angle	error in	datatype
1989	170	9:38:57	3.00	+/- 0.15	272.0	+/- 1.0	SMM	
1989	170	10: 3:43	3.30	+/- 0.15	272.0	+/- 1.0	SMM	
1989	170	10:20:13	3.70	+/- 0.20	272.0	+/- 1.0	SMM	
1989	170	11:11:36	4.80	+/- 0.20	272.0	+/- 1.0	SMM	

Structure being measured:
Top of Faint Front

OUTPUT:

START TIME:

tstart=DOY170 8:17 from derivative = 0
Event begins at 2.47 Solar Radii
Origin defined at DOY170 9: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.294E-01 +/- 0.112E-01 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.261E+01 +/- 0.188E+00 [solar radii]
c(2) = 0.667E-02 +/- 0.503E-02 [radii/min]
c(2) = 0.773E+02 +/- 0.583E+02 [km/sec]
c(3) = 0.761E-04 +/- 0.290E-04 [radii/min**2]
c(3) = 0.294E-01 +/- 0.112E-01 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.28889E+00 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.11175E+00 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.74552E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.35601E-02 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.42006E-04 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.20687E-04 [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) = 272. +/- 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 9:38 = 0. km/sec

The TOTAL velocity at 9:38 = 146. km/sec

The TANGENTIAL velocity at 10: 3 = 0. km/sec

The TOTAL velocity at 10: 3 = 190. km/sec

The TANGENTIAL velocity at 10:20 = 0. km/sec

The TOTAL velocity at 10:20 = 219. km/sec

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

The TOTAL velocity at 11:11 = 310. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.79

Standard Deviation in start time measurement = 0.339E+02

Value of reduced Chi Squared returned from nllst2 = 0.292E-02

Reduced Chi Squared = 0.167E-01

Chi Squared = 0.167E-01

The probability for exceeding chi square = 0.957E+00

For a second order fit 3 correlation coefficients are given:

(Using equation of motion: $r = a + bt + at^{**2}$)

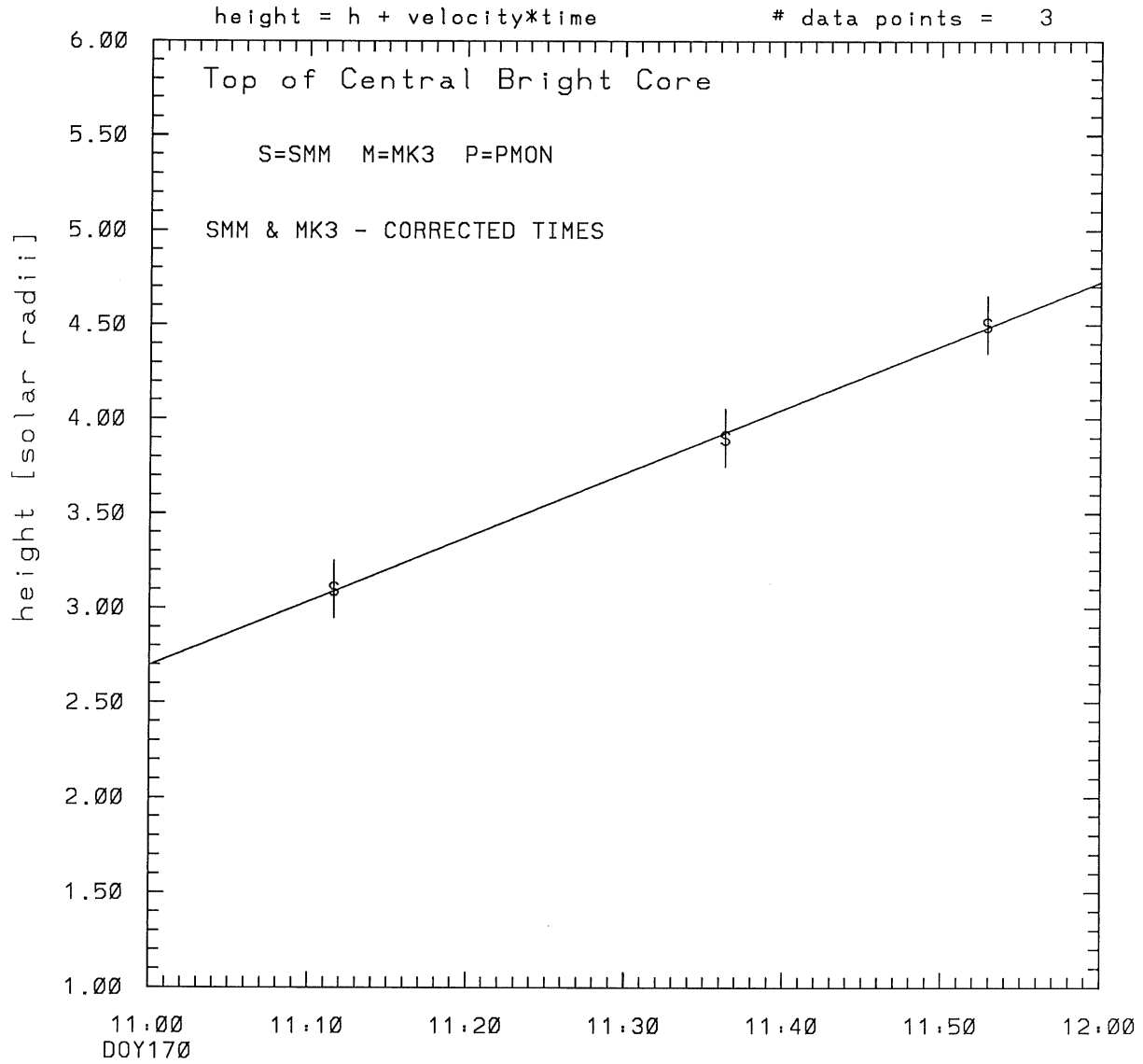
The correlation between the data and the term linear in time = 0.9613E+00

The correlation between the data and the time**2 term = 0.9413E+00

0The correlation between the data and the complete equation of motion = 0.9943E+00

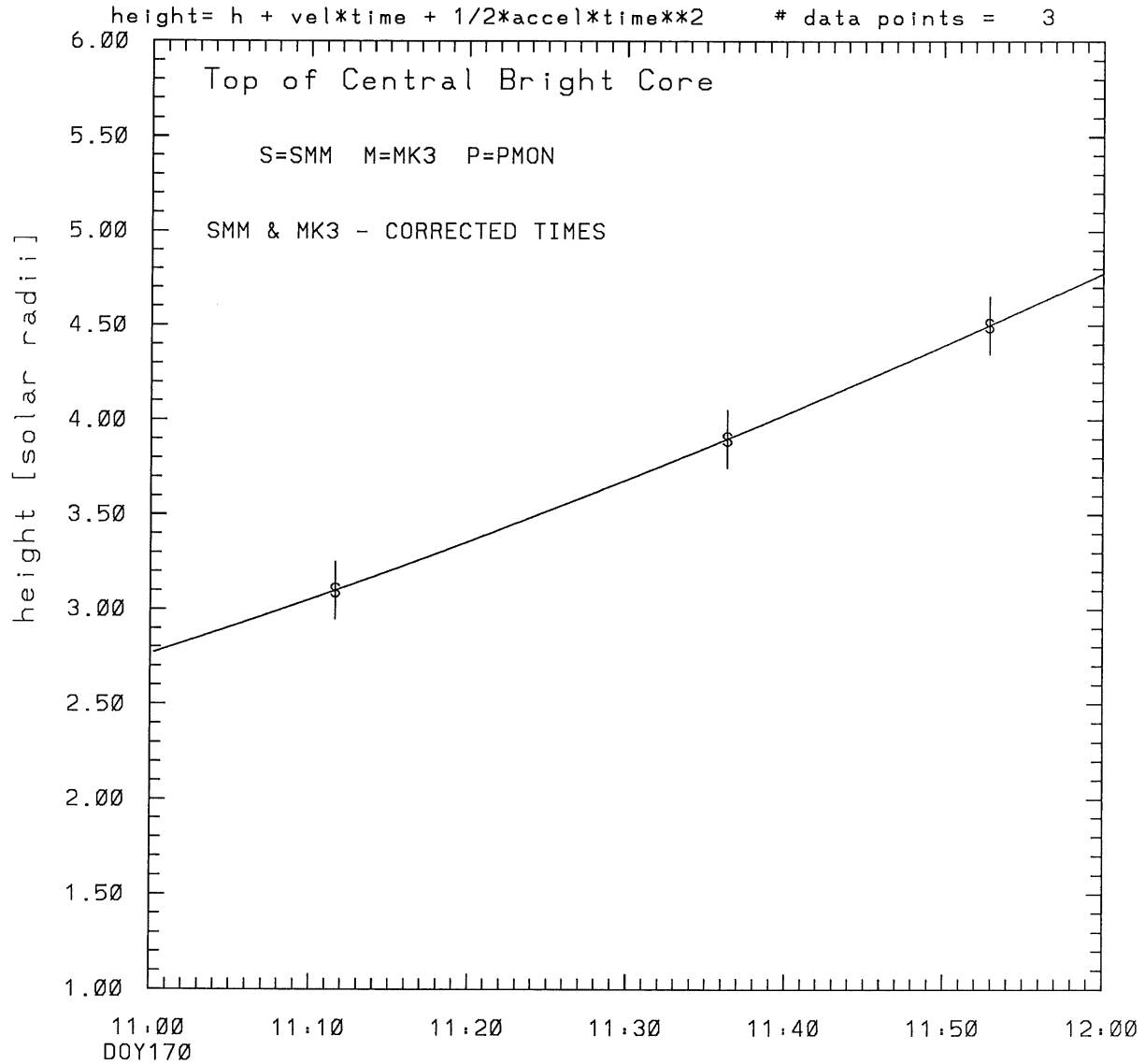
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

SMM C/P 1989 DOY170 272 +/- 0 degrees



tstart=DOY170 10:10 +/- 0.7 [min.]
radial velocity= 392. +/- 9. [km/sec]

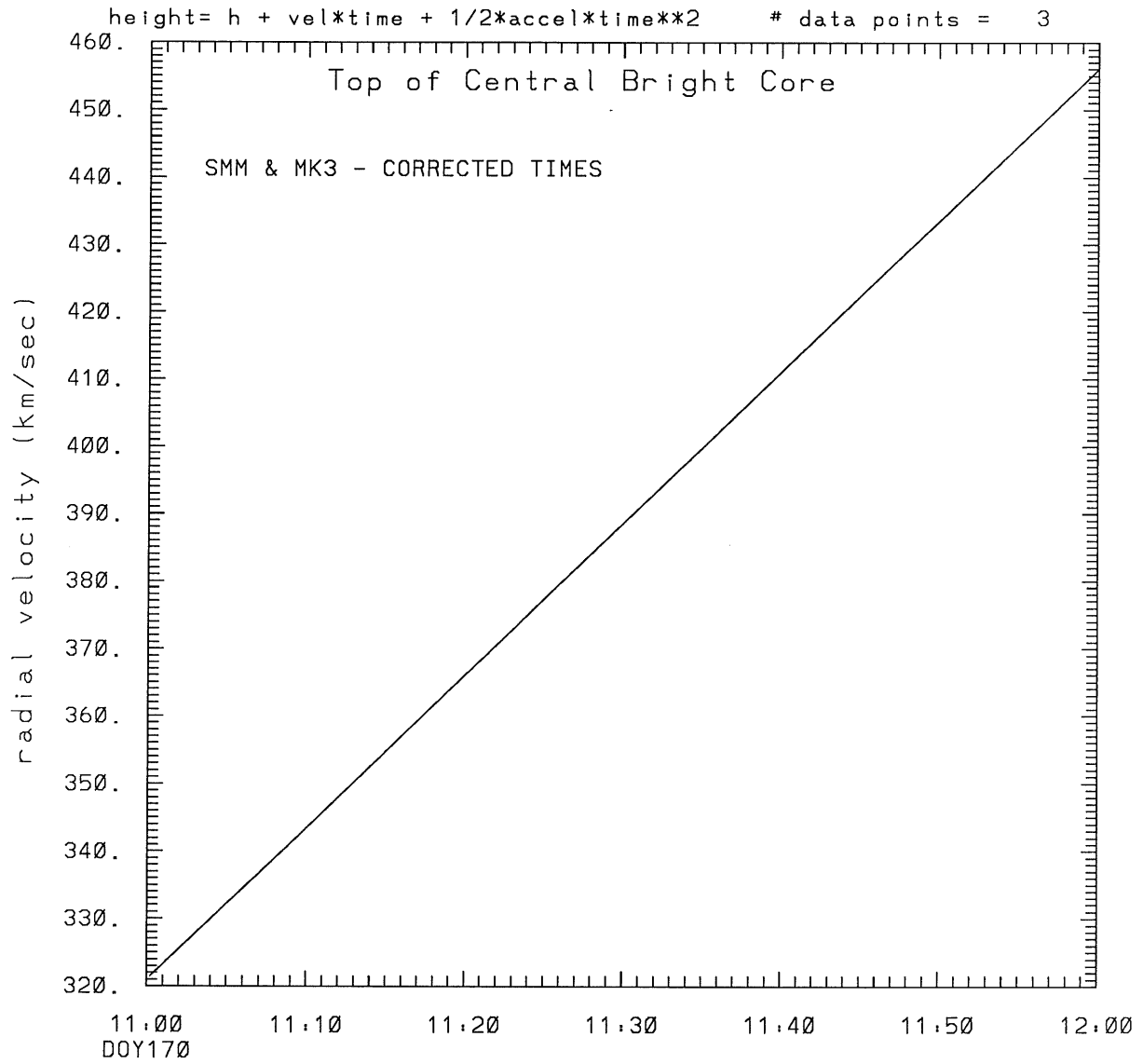
SMM C/P 1989 DOY170 272 +/- 0 degrees



tstart=DOY170 9:24 +/- 0.0 [min.]

radial acceleration = 0.0375 +/- 0.0000 [km/sec**2]

SMM C/P 1989 DOY170 272 +/- 0 degrees



tstart=DOY170 9:24 +/- 0.0 [min.]

radial acceleration=0.375E-01 km/sec**2

This is a 1 order run

INPUT:

year	day	time	radii	error in radius	angle	error in angle	datatype
1989	170	11:11:36	3.10	+/- 0.15	272.0	+/- 1.0	SMM
1989	170	11:36:21	3.90	+/- 0.15	272.0	+/- 1.0	SMM
1989	170	11:52:52	4.50	+/- 0.15	272.0	+/- 1.0	SMM

Structure being measured:
Top of Central Bright Core

OUTPUT:

START TIME:

Event began at $t = 0 + -0.502E+02 +/- 0.714E+00$ [minutes]
In more convenient units:
Event began at DOY 170 10:10 +/- 0.714E+00 [minutes]

Origin defined at DOY170 11: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 392. +/- 9. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

$c(1) = 0.270E+01 +/- 0.292E-01$ [solar radii]
 $c(2) = 0.338E-01 +/- 0.774E-03$ [radii/min]
 $c(2) = 0.392E+03 +/- 0.898E+01$ [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 $c(1) = 0.41227E-01$ [radii] see Bevington pg. 114
error in $c(2) = 0.10952E-02$ [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) = 272. +/- 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 11:11 = 0. km/sec

The TOTAL velocity at 11:11 = 392. km/sec

The TANGENTIAL velocity at 11:36 = 0. km/sec

The TOTAL velocity at 11:36 = 392. km/sec

The TANGENTIAL velocity at 11:52 = 0. km/sec

The TOTAL velocity at 11:52 = 392. 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 = 0.170E+02

Error in time = 0.95179E+00 using best fit method

See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.517E-03

Reduced Chi Squared = 0.221E-02

Chi Squared = 0.221E-02

The probability for exceeding chi square = 0.982E+00

The correlation coefficient = 0.999E+00

The probability that no LINEAR correlation exists between the variables = 0.2058E-01

SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

This is a 2 order run

INPUT:

year	day	time	radii	error in radius	angle	error in angle	datatype
1989	170	11:11:36	3.10	+/- 0.15	272.0	+/- 1.0	SMM
1989	170	11:36:21	3.90	+/- 0.15	272.0	+/- 1.0	SMM
1989	170	11:52:52	4.50	+/- 0.15	272.0	+/- 1.0	SMM

Structure being measured:
Top of Central Bright Core

OUTPUT:

START TIME:

Event began at $t = 0 + -0.964E+02 +/- 0.000E+00$ [minutes]
In more convenient units:
Event began at DOY 170 9:24 +/- 0.000E+00 [minutes]

Origin defined at DOY170 11: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = $0.375E-01 +/- 0.622E-06$ km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = $0.277E+01 +/- 0.132E-05$ [solar radii]
c(2) = $0.277E-01 +/- 0.103E-06$ [radii/min]
c(2) = $0.321E+03 +/- 0.120E-02$ [km/sec]
c(3) = $0.970E-04 +/- 0.161E-08$ [radii/min**2]
c(3) = $0.375E-01 +/- 0.622E-06$ [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) = 272. +/- 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]

$$a(3) = 0.000E+00 \pm 0.000E+00 \text{ [rad/sec**2]}$$

THE TANGENTIAL AND TOTAL VELOCITIES AT EACH DATA POINT ARE:

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

The TOTAL velocity at 11:11 = 347. km/sec

The TANGENTIAL velocity at 11:36 = 0. km/sec

The TOTAL velocity at 11:36 = 403. km/sec

The TANGENTIAL velocity at 11:52 = 0. km/sec

The TOTAL velocity at 11:52 = 440. 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!