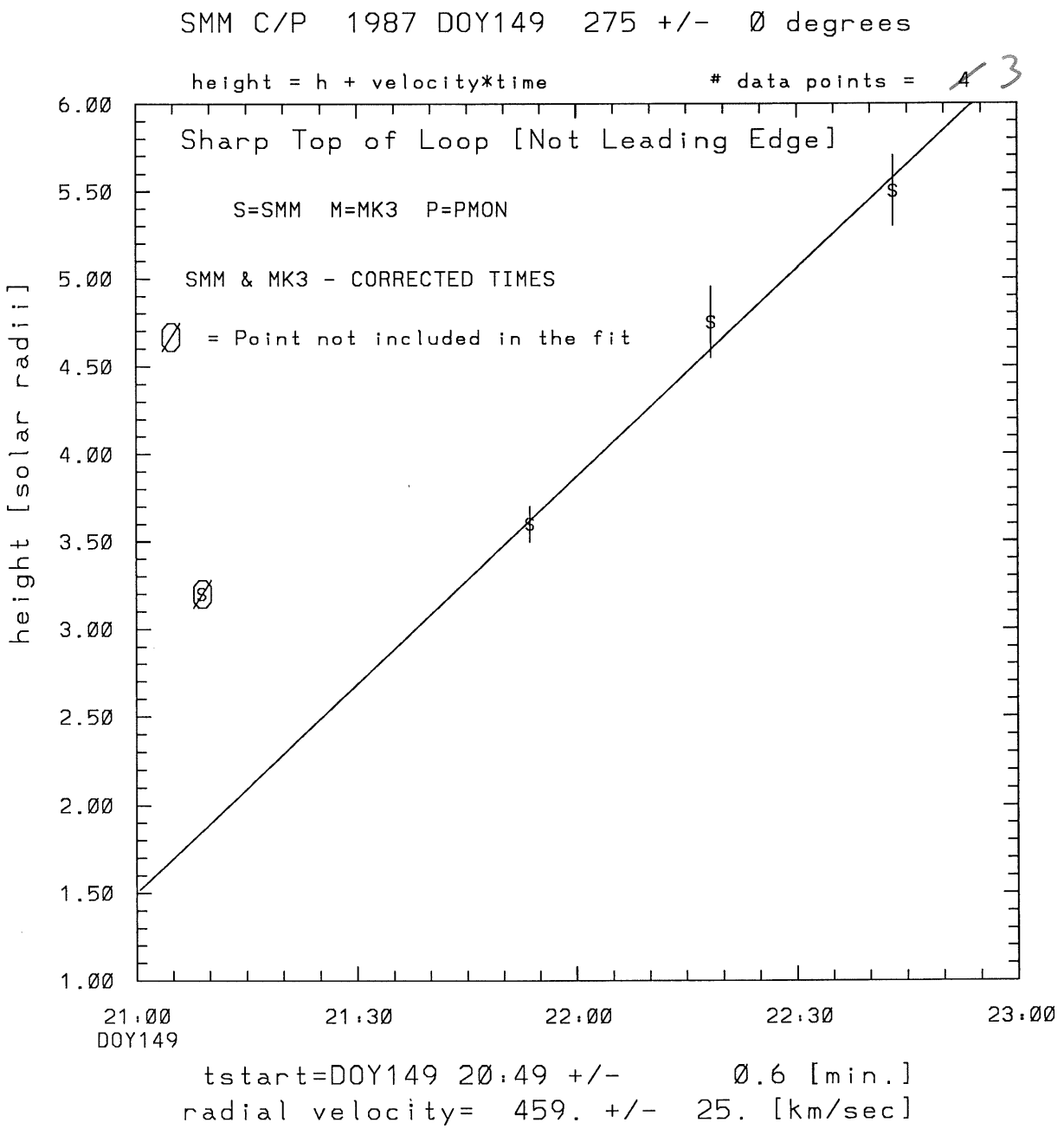
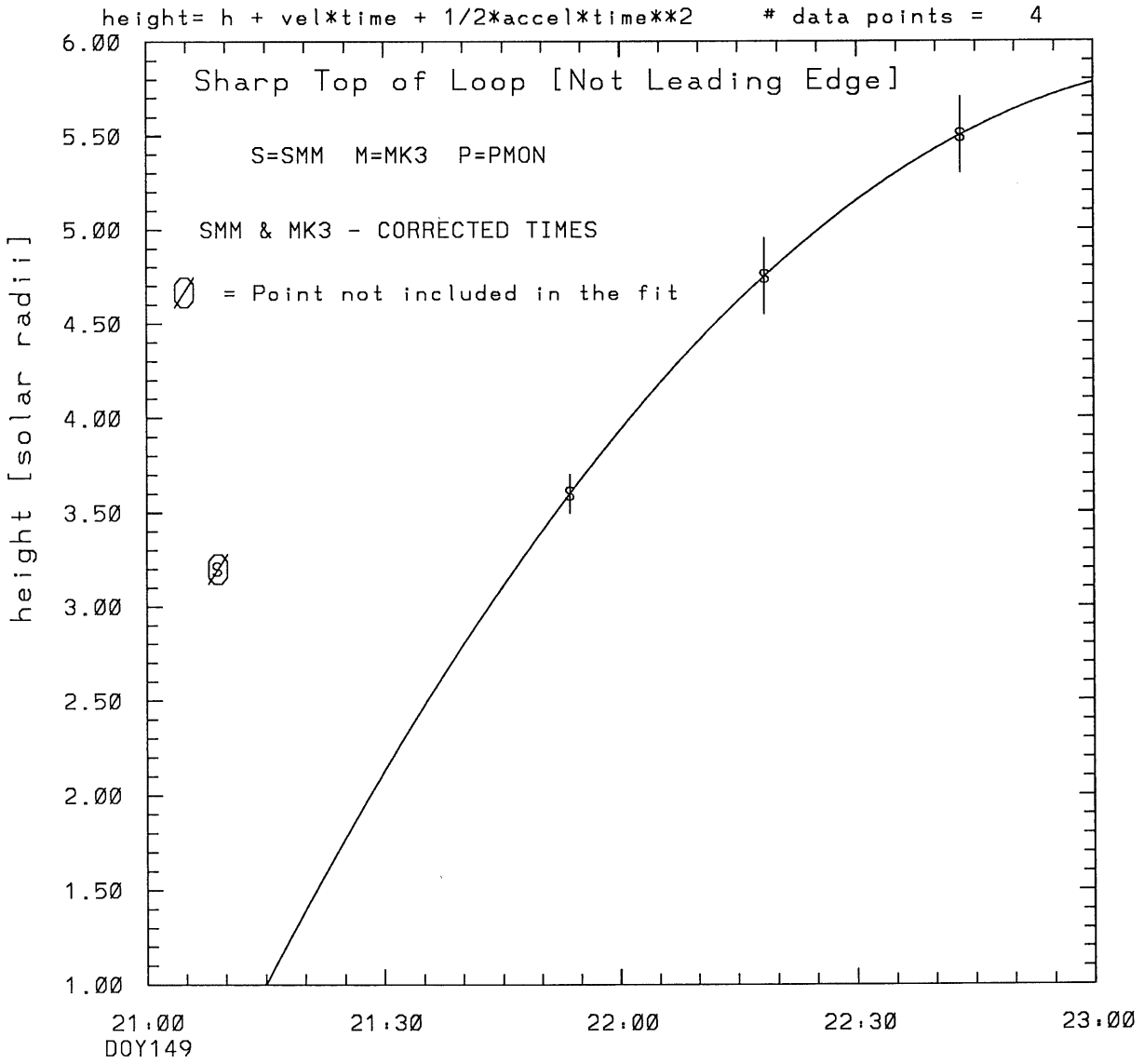

SMM C/P 1987 DOY149 275 +/- Ø degrees
height = h + velocity*time
# data points = 4 3
Sharp Top of Loop [Not Leading Edge]
S=SMM M=MK3 P=PMON
SMM & MK3 - CORRECTED TIMES
Ø = Point not included in the fit
height [solar radii]
6.ØØ
5.5Ø
5.ØØ
4.5Ø
4.ØØ
3.5Ø
3.ØØ
2.5Ø
2.ØØ
1.5Ø
1.ØØ
21:ØØ
DOY149
21:3Ø
22:ØØ
22:3Ø
23:ØØ
tstart=DOY149 2Ø:49 +/- Ø.6 [min.]
radial velocity= 459. +/- 25. [km/sec]

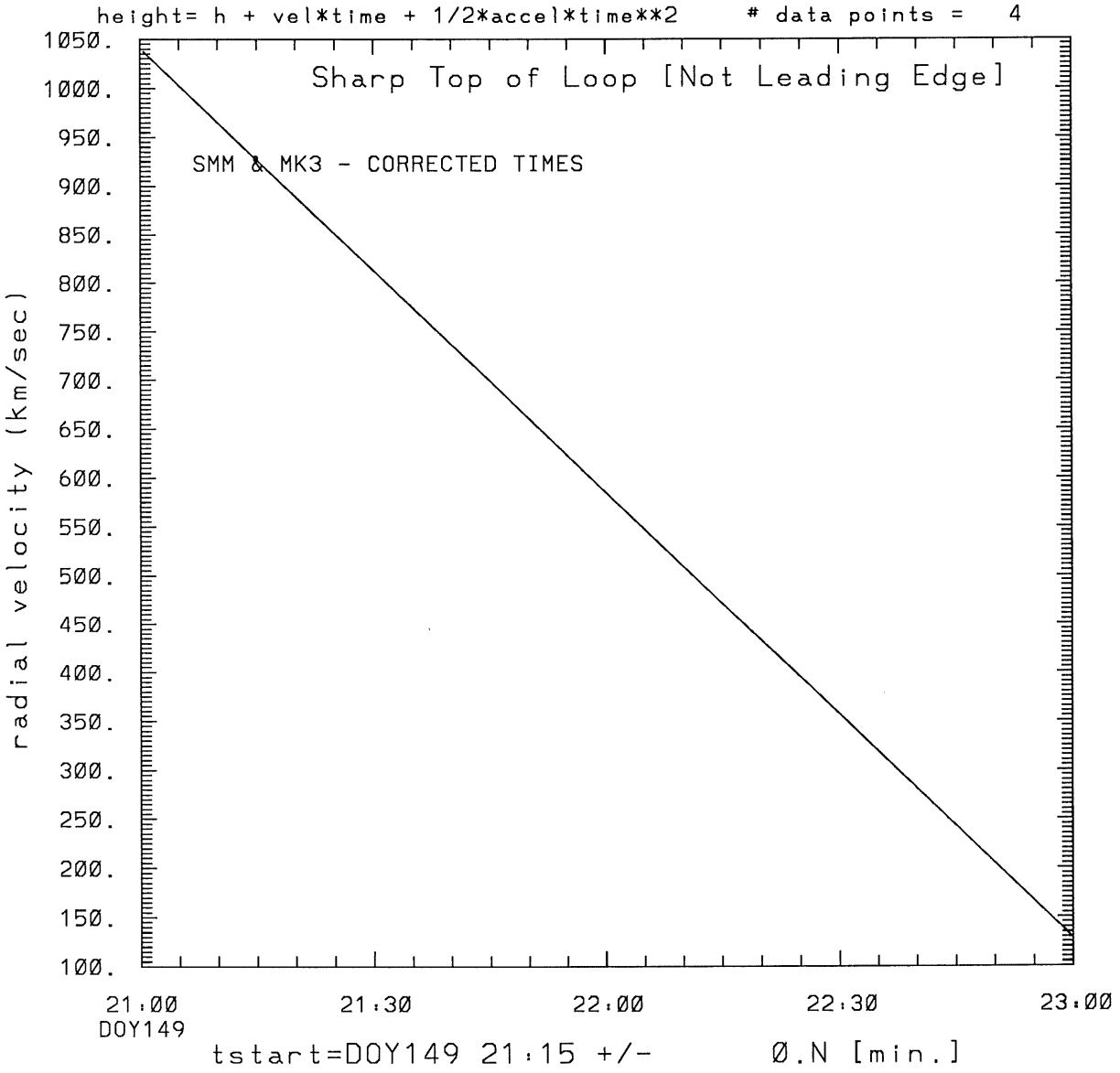
SMM C/P 1987 DOY149 275 +/- Ø degrees



tstart=DOY149 21:15 +/- Ø.N [min.]

radial acceleration=-Ø.1266 +/- Ø.ØØØØ [km/sec**2]

SMM C/P 1987 DOY149 275 +/- Ø degrees



radial acceleration=-.127E+ØØ km/sec**2

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1987	149	21: 8:53	3.20	-----	275.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1987	149	21:53:38	3.60 +/- 0.10		275.0 +/-	1.0	SMM
1987	149	22:18:22	4.75 +/- 0.20		275.0 +/-	1.0	SMM
1987	149	22:43: 8	5.50 +/- 0.20		275.0 +/-	1.0	SMM

****
Structure being measured:
Sharp Top of Loop [Not Leading Edge]
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.126E+02 +/- 0.639E+00 [minutes]
In more convenient units:
Event began at DOY 149 20:49 +/- 0.639E+00 [minutes]

Origin defined at DOY149 21: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 459. +/- 25. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.150E+01 +/- 0.150E+00 [solar radii]
c(2) = 0.395E-01 +/- 0.218E-02 [radii/min]
c(2) = 0.459E+03 +/- 0.253E+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)= 0.97105E+00 [radii] see Bevington pg. 114
error in c(2)= 0.13825E-01 [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) = 275. +/- 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 21: 8 = 0.000E+00 km/sec
The TOTAL velocity at 21: 8 = 459. km/sec

The TANGENTIAL velocity at 21:53 = 0.000E+00 km/sec
The TOTAL velocity at 21:53 = 459. km/sec

The TANGENTIAL velocity at 22:18 = 0.000E+00 km/sec
The TOTAL velocity at 22:18 = 459. km/sec

The TANGENTIAL velocity at 22:43 = 0.000E+00 km/sec
The TOTAL velocity at 22:43 = 459. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 1.05
Standard Deviation in start time measurement = 0.348E+02
Error in time = 0.34426E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.682E-02
Reduced Chi Squared = 0.959E+00
Chi Squared = 0.192E+01
The probability for exceeding chi square = 0.993E+00

The correlation coefficient = 0.950E+00
The probability that no LINEAR correlation exists between the variables = 0.4968E-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
1987	149	21: 8:53	3.20	-----	275.00 +/-	----	SMM THIS POINT WASN'T USED IN THE FIT.
1987	149	21:53:38	3.60 +/- 0.10		275.0 +/-	1.0	SMM
1987	149	22:18:22	4.75 +/- 0.20		275.0 +/-	1.0	SMM
1987	149	22:43: 8	5.50 +/- 0.20		275.0 +/-	1.0	SMM

****
Structure being measured:
Sharp Top of Loop [Not Leading Edge]
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + 0.150E+02 +/- NaN [minutes]
In more convenient units:
Event began at DOY 149 21:15 +/- NaN [minutes]

Origin defined at DOY149 21: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.127E+00 +/- 0.422E-06 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = -0.270E+00 +/- 0.596E-05 [solar radii]
c(2) = 0.897E-01 +/- 0.168E-06 [radii/min]
c(2) = 0.104E+04 +/- 0.195E-02 [km/sec]
c(3) = -0.328E-03 +/- 0.109E-08 [radii/min**2]
c(3) = -0.127E+00 +/- 0.422E-06 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.35948E+01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.00000E+00 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.15318E+00 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = NaN [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.13568E-02 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = NaN [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) = 275. +/- 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 21: 8 = 0.000E+00 km/sec
The TOTAL velocity at 21: 8 = 973. km/sec

The TANGENTIAL velocity at 21:53 = 0.000E+00 km/sec
The TOTAL velocity at 21:53 = 633. km/sec

The TANGENTIAL velocity at 22:18 = 0.000E+00 km/sec
The TOTAL velocity at 22:18 = 445. km/sec

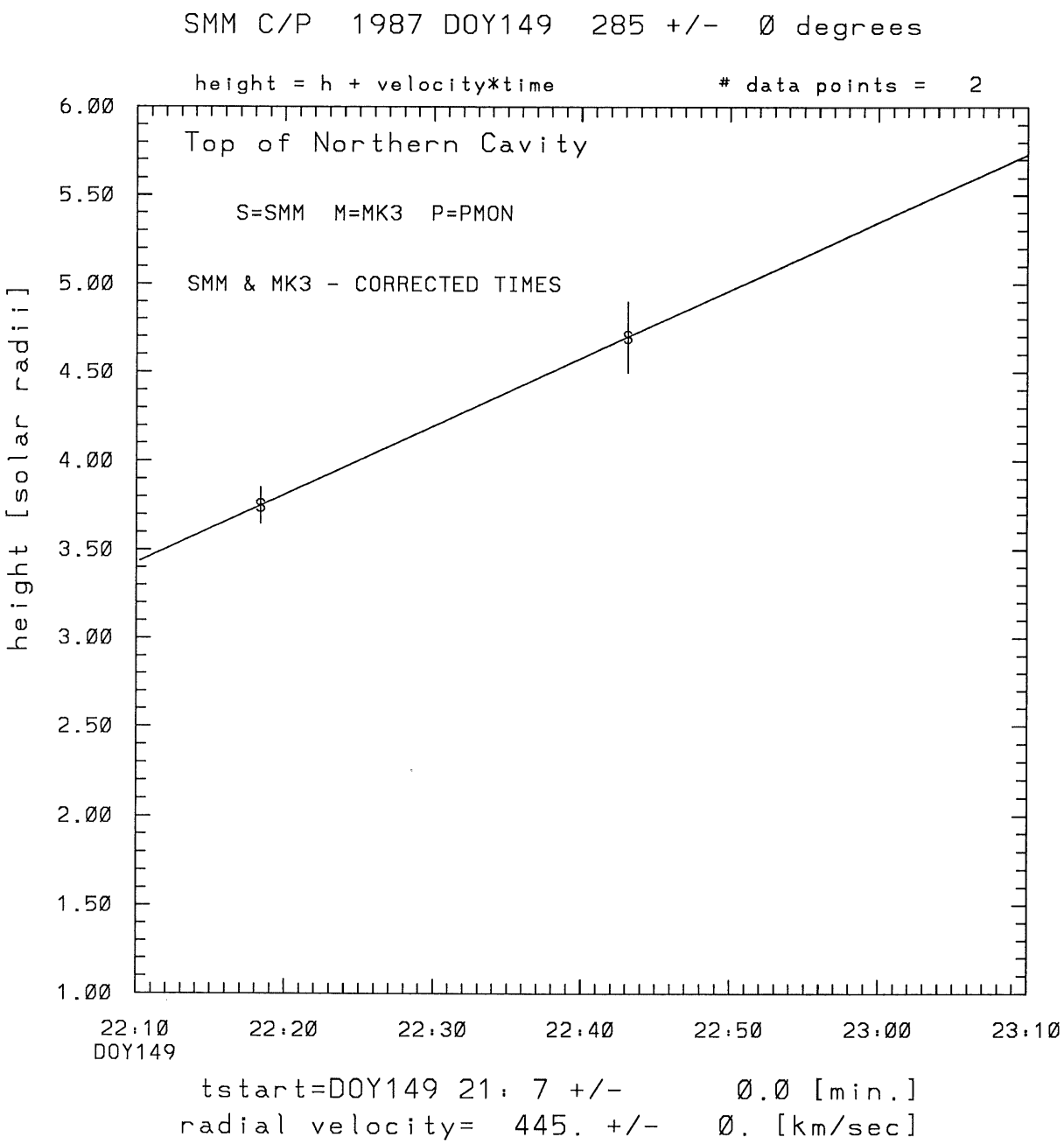
The TANGENTIAL velocity at 22:43 = 0.000E+00 km/sec
The TOTAL velocity at 22:43 = 257. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 1.05
Standard Deviation in start time measurement = 0.348E+02
Value of reduced Chi Squared returned from nllst2 = 0.227E-12
Reduced Chi Squared = 0.729E+01
Chi Squared = 0.729E+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 = 0.5006E+00
The correlation between the data and the time**2 term = 0.7247E+00
0The correlation between the data and the complete equation of motion = 0.8229E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]


SMM C/P 1987 DOY149 285 +/- Ø degrees
height = h + velocity*time
# data points = 2
Top of Northern Cavity
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
22:1Ø
DOY149
22:2Ø
22:3Ø
22:4Ø
22:5Ø
23:ØØ
23:1Ø
tstart=DOY149 21: 7 +/- Ø.Ø [min.]
radial velocity= 445. +/- Ø. [km/sec]

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1987	149	22:18:22	3.75	+/- 0.10	285.0	+/- 1.0	SMM
1987	149	22:43: 8	4.70	+/- 0.20	285.0	+/- 1.0	SMM

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

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.633E+02 +/- 0.000E+00 [minutes]
In more convenient units:
Event began at DOY 149 21: 7 +/- 0.000E+00 [minutes]

Origin defined at DOY149 22:10

RADIAL INFORMATION:

RADIAL VELOCITY = 445. +/- 0. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.343E+01 +/- 0.000E+00 [solar radii]
c(2) = 0.384E-01 +/- 0.000E+00 [radii/min]
c(2) = 0.445E+03 +/- 0.000E+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]

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.0000E+00 +/- 0.0000E+00[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 285. +/- 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]

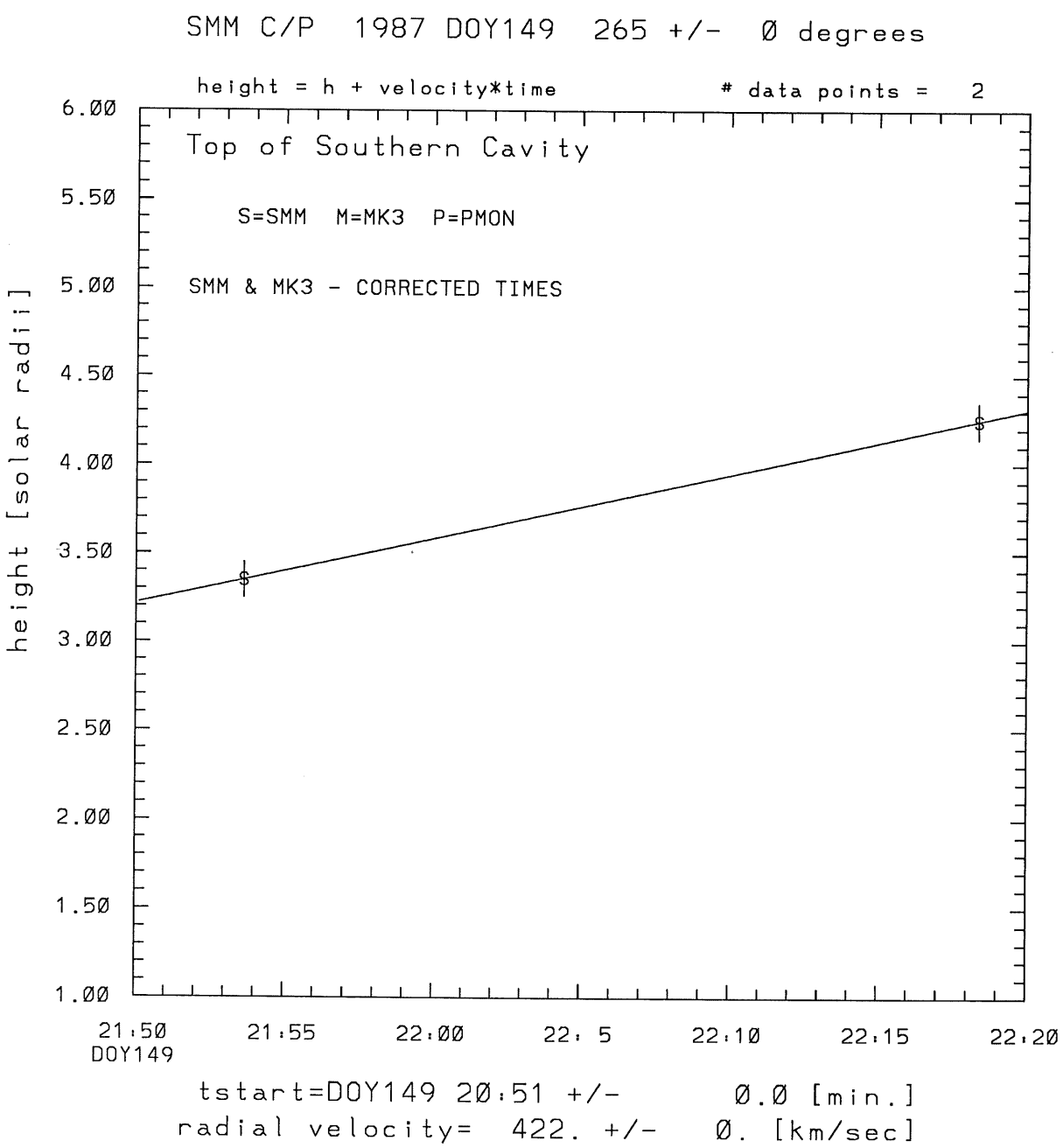
THE TANGENTIAL AND TOTAL VELOCITIES AT EACH DATA POINT ARE:
The TANGENTIAL velocity at 22:18 = 0.000E+00 km/sec
The TOTAL velocity at 22:18 = 445. km/sec

The TANGENTIAL velocity at 22:43 = 0.000E+00 km/sec
The TOTAL velocity at 22:43 = 445. 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!


SMM C/P 1987 DOY149 265 +/- Ø degrees
height = h + velocity*time
# data points = 2
Top of Southern Cavity
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
21:5Ø
DOY149
21:55
22:ØØ
22: 5
22:1Ø
22:15
22:2Ø
tstart=DOY149 2Ø:51 +/- Ø.Ø [min.]
radial velocity= 422. +/- Ø. [km/sec]

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1987	149	21:53:38	3.35	+/- 0.10	265.0	+/- 1.0	SMM
1987	149	22:18:22	4.25	+/- 0.10	265.0	+/- 1.0	SMM

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

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.609E+02 +/- 0.000E+00 [minutes]
In more convenient units:
Event began at DOY 149 20:51 +/- 0.000E+00 [minutes]

Origin defined at DOY149 21:50

RADIAL INFORMATION:

RADIAL VELOCITY = 422. +/- 0. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.322E+01 +/- 0.276E-06 [solar radii]
c(2) = 0.364E-01 +/- 0.136E-07 [radii/min]
c(2) = 0.422E+03 +/- 0.158E-03 [km/sec]
c(3) = 0.000E+00 +/- 0.000E+00 [radii/min**2]
c(3) = 0.000E+00 +/- 0.000E+00 [km/sec**2]

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.0000E+00 +/- 0.0000E+00[radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 265. +/- 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 21:53 = 0.000E+00 km/sec
The TOTAL velocity at 21:53 = 422. km/sec

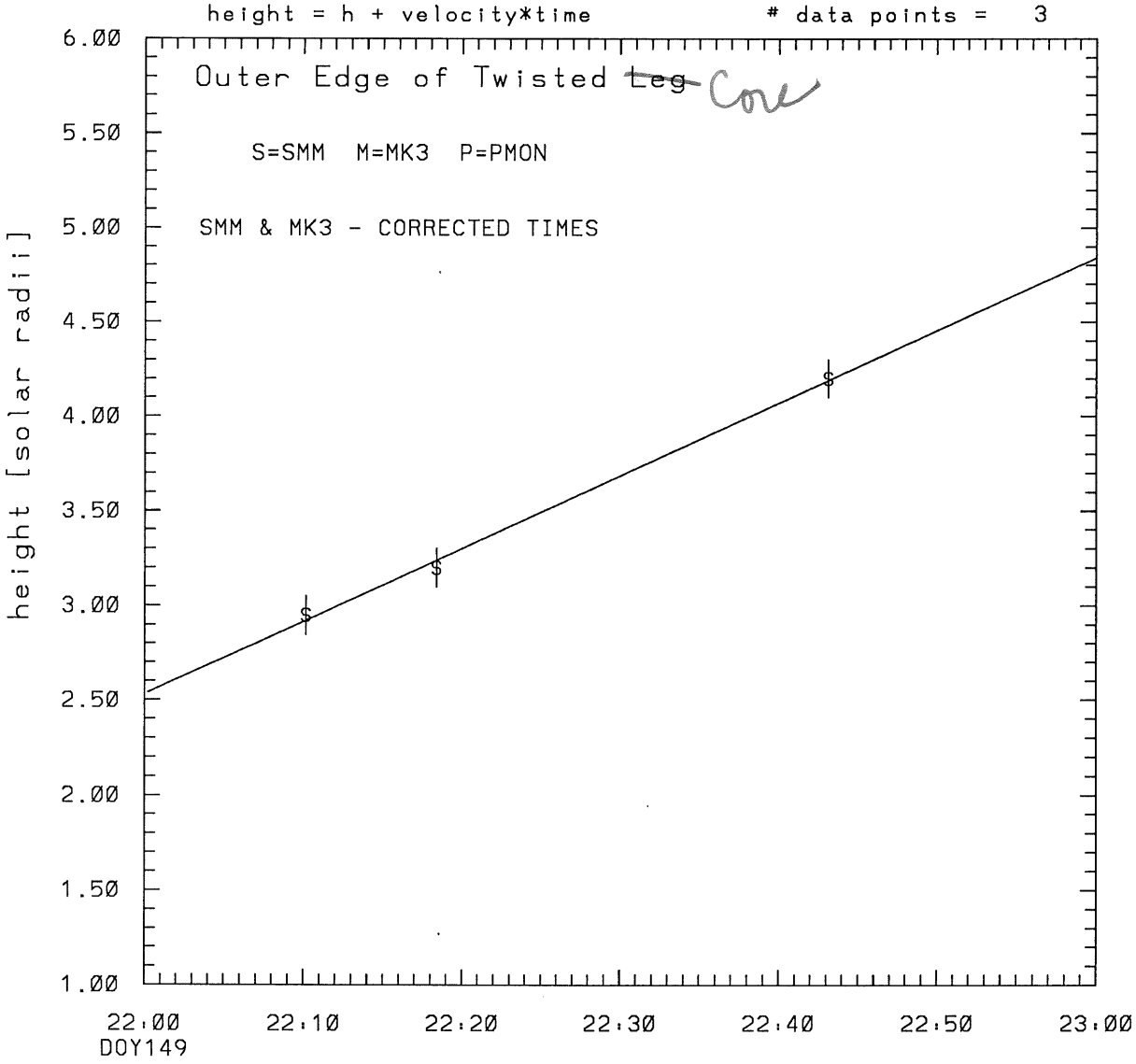
The TANGENTIAL velocity at 22:18 = 0.000E+00 km/sec
The TOTAL velocity at 22:18 = 422. km/sec

****
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!

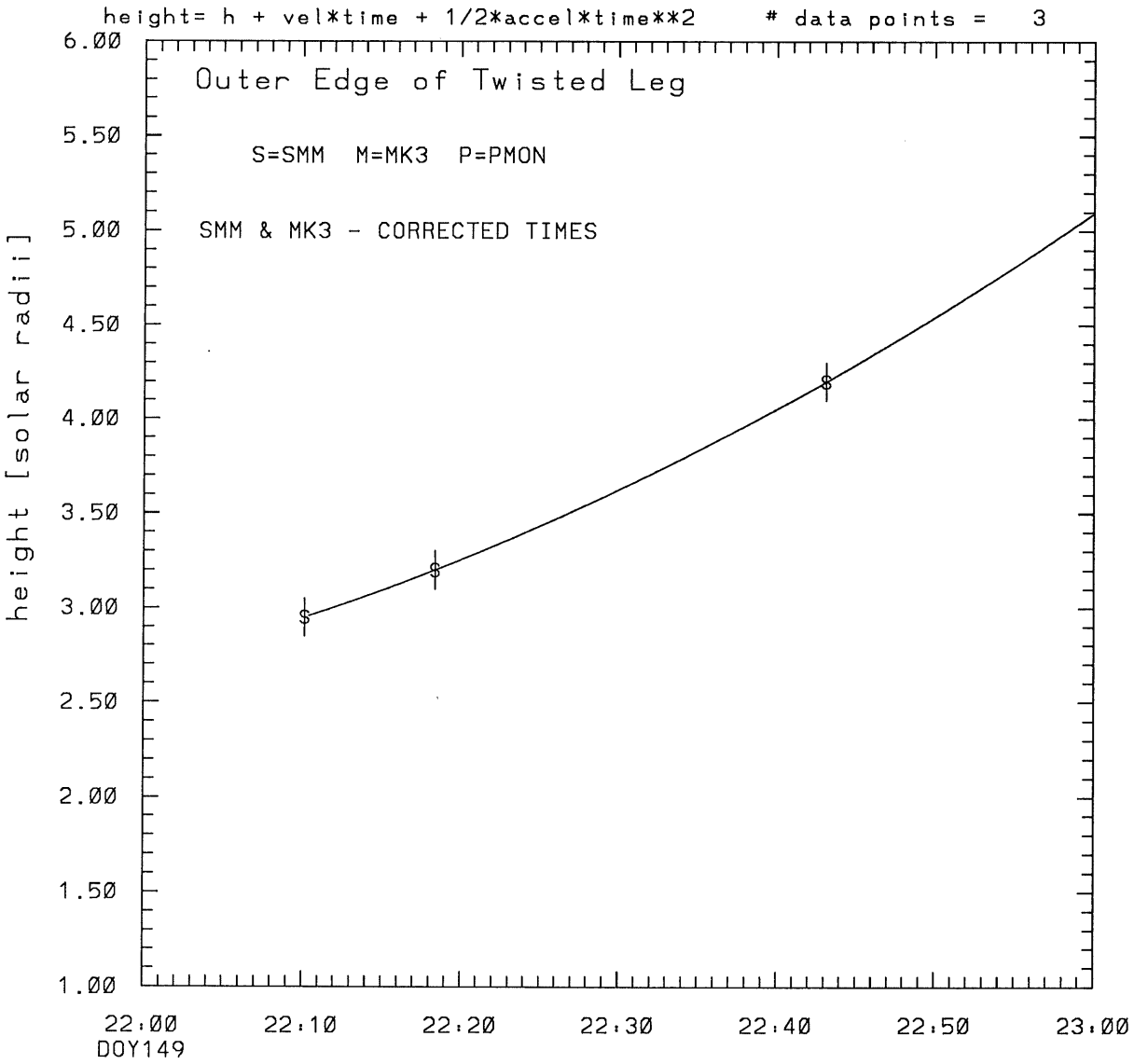
SMM C/P 1987 DOY149 255 +/- Ø degrees



tstart=DOY149 21:22 +/- 1.Ø [min.]

radial velocity= 446. +/- 16. [km/sec]

SMM C/P 1987 DOY149 255 +/- Ø degrees

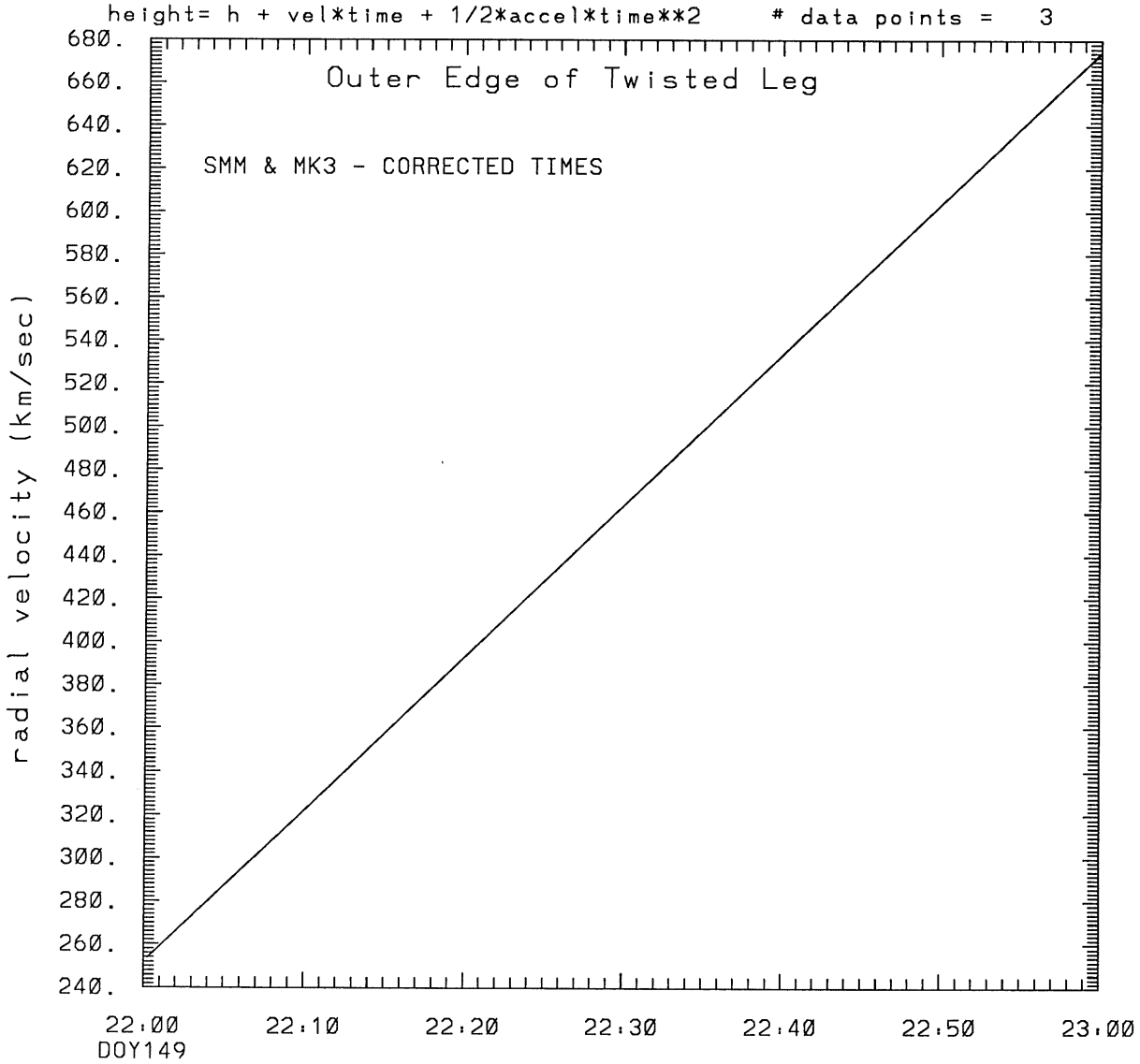


tstart=DOY149 21:25 from derivative=Ø

Event begins at 2.31 Solar Radii

radial acceleration= Ø.1173 +/- Ø.ØØØØ [km/sec**2]

SMM C/P 1987 DOY149 255 +/- Ø degrees



tstart=DOY149 21:25 from derivative=Ø

Event begins at 2.31 Solar Radii

radial acceleration=Ø.117E+ØØ km/sec**2

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1987	149	22:10: 8	2.95	+/- 0.10	255.0	+/- 1.0	SMM
1987	149	22:18:22	3.20	+/- 0.10	255.0	+/- 1.0	SMM
1987	149	22:43: 8	4.20	+/- 0.10	255.0	+/- 1.0	SMM

****
Structure being measured:
Outer Edge of Twisted ~~Leg~~ Core
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.398E+02 +/- 0.990E+00 [minutes]
In more convenient units:
Event began at DOY 149 21:22 +/- 0.990E+00 [minutes]

Origin defined at DOY149 22: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 446. +/- 16. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.253E+01 +/- 0.391E-01 [solar radii]
c(2) = 0.385E-01 +/- 0.141E-02 [radii/min]
c(2) = 0.446E+03 +/- 0.164E+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)= 0.55320E-01 [radii] see Bevington pg. 114
error in c(2)= 0.19977E-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) = 255. +/- 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 22:10 = 0.000E+00 km/sec
The TOTAL velocity at 22:10 = 446. km/sec

The TANGENTIAL velocity at 22:18 = 0.000E+00 km/sec
The TOTAL velocity at 22:18 = 446. km/sec

The TANGENTIAL velocity at 22:43 = 0.000E+00 km/sec
The TOTAL velocity at 22:43 = 446. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.66
Standard Deviation in start time measurement = 0.140E+02
Error in time = 0.12618E+01 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.118E-02
Reduced Chi Squared = 0.398E-02
Chi Squared = 0.398E-02
The probability for exceeding chi square = 0.973E+00

The correlation coefficient = 0.999E+00
The probability that no LINEAR correlation exists between the variables = 0.3302E-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
1987 149	22:10: 8	2.95	+/- 0.10	255.0	+/- 1.0	SMM
1987 149	22:18:22	3.20	+/- 0.10	255.0	+/- 1.0	SMM
1987 149	22:43: 8	4.20	+/- 0.10	255.0	+/- 1.0	SMM

****
Structure being measured:
Outer Edge of Twisted Leg
****

****
OUTPUT:
****

START TIME:

tstart=DOY149 21:25 from derivative = 0
Event begins at 2.31 Solar Radii
Origin defined at DOY149 22: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.117E+00 +/- 0.208E-05 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.270E+01 +/- 0.312E-05 [solar radii]
c(2) = 0.217E-01 +/- 0.299E-06 [radii/min]
c(2) = 0.252E+03 +/- 0.346E-02 [km/sec]
c(3) = 0.303E-03 +/- 0.537E-08 [radii/min**2]
c(3) = 0.117E+00 +/- 0.208E-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) = 255. +/- 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 22:10 = 0.000E+00 km/sec
The TOTAL velocity at 22:10 = 323. km/sec

The TANGENTIAL velocity at 22:18 = 0.000E+00 km/sec
The TOTAL velocity at 22:18 = 381. km/sec

The TANGENTIAL velocity at 22:43 = 0.000E+00 km/sec
The TOTAL velocity at 22:43 = 556. 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!