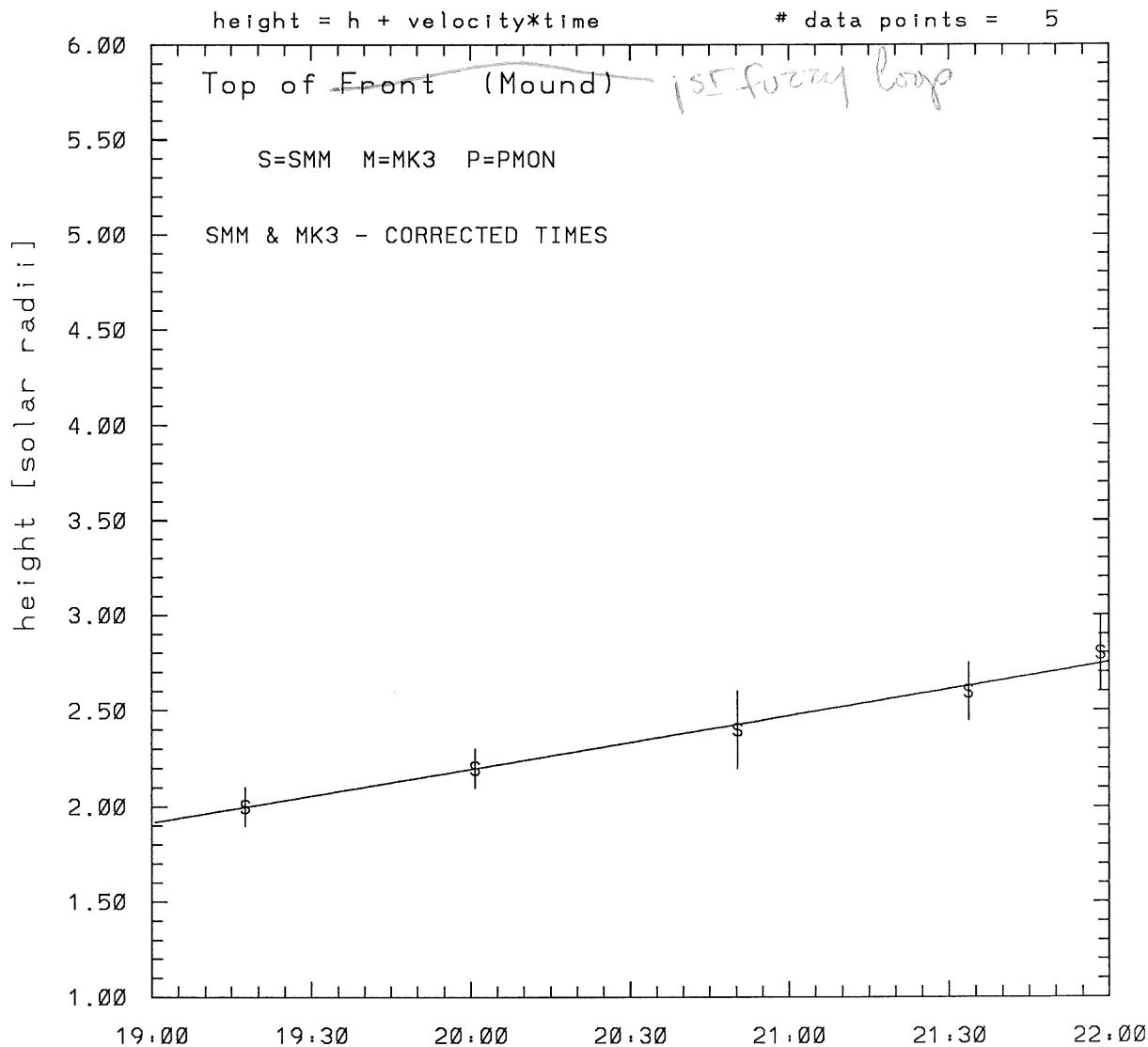




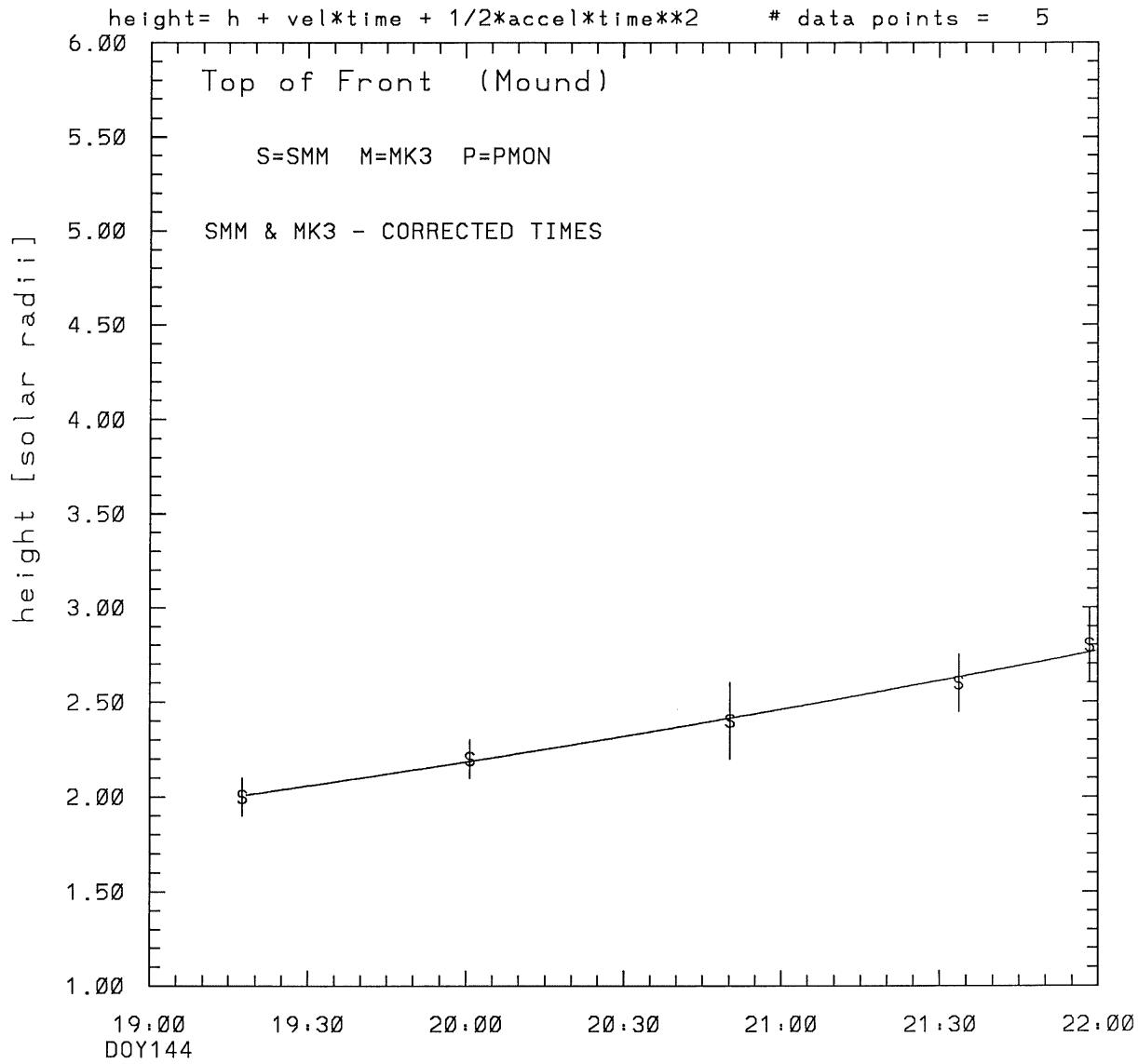
SMM C/P 1989 DOY144 305 +/- 0 degrees



tstart=DOY144 15:43 +/- 2.0 [min.]

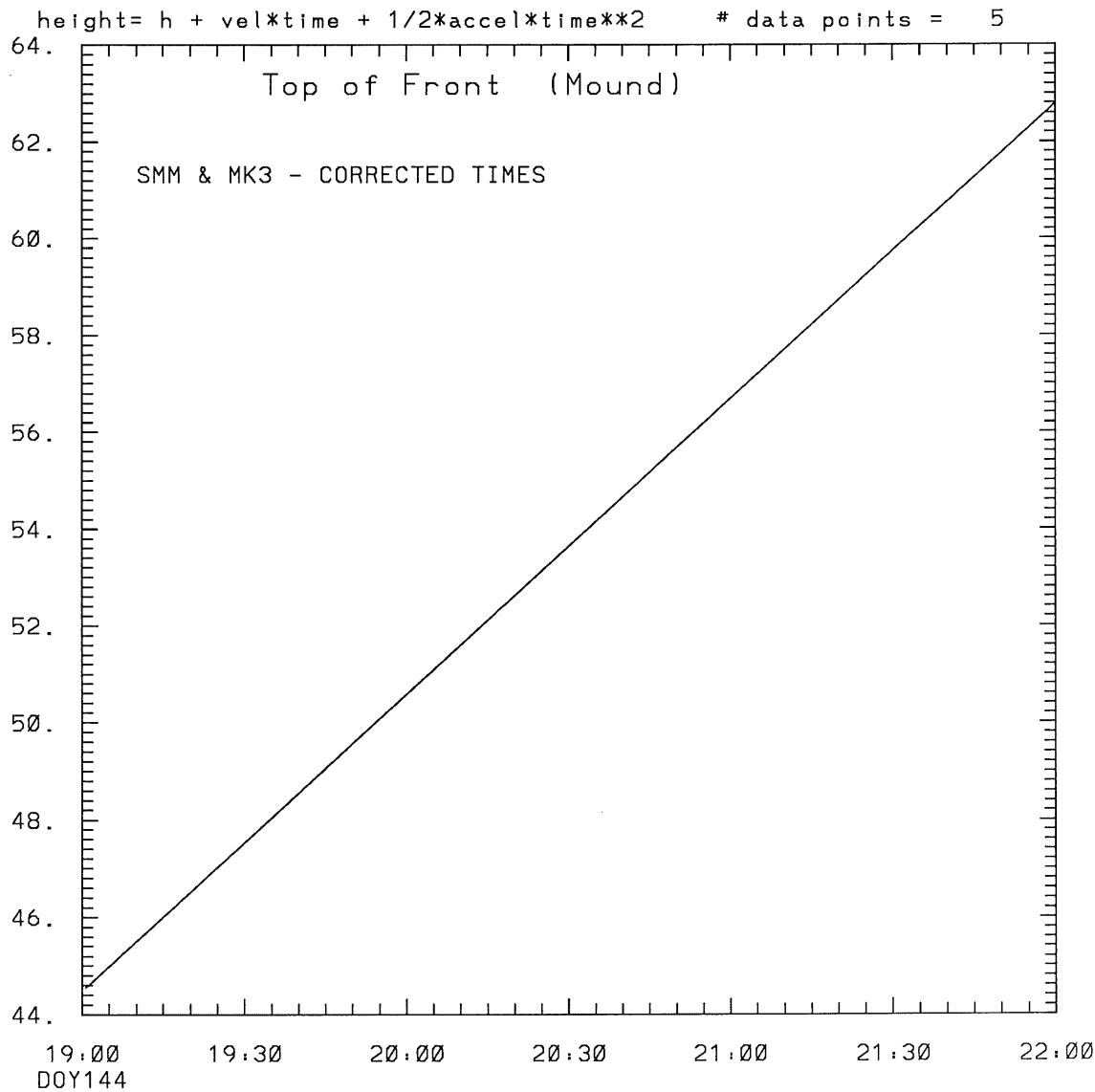
radial velocity= 54. +/- 2. [km/sec]

SMM C/P 1989 DOY144 305 +/- 0 degrees



tstart=DOY144 11:43 from derivative=0
Event begins at 1.10 Solar Radii
radial acceleration= 0.0017 +/- 0.0017 [km/sec**2]

SMM C/P 1989 DOY144 305 +/- 0 degrees



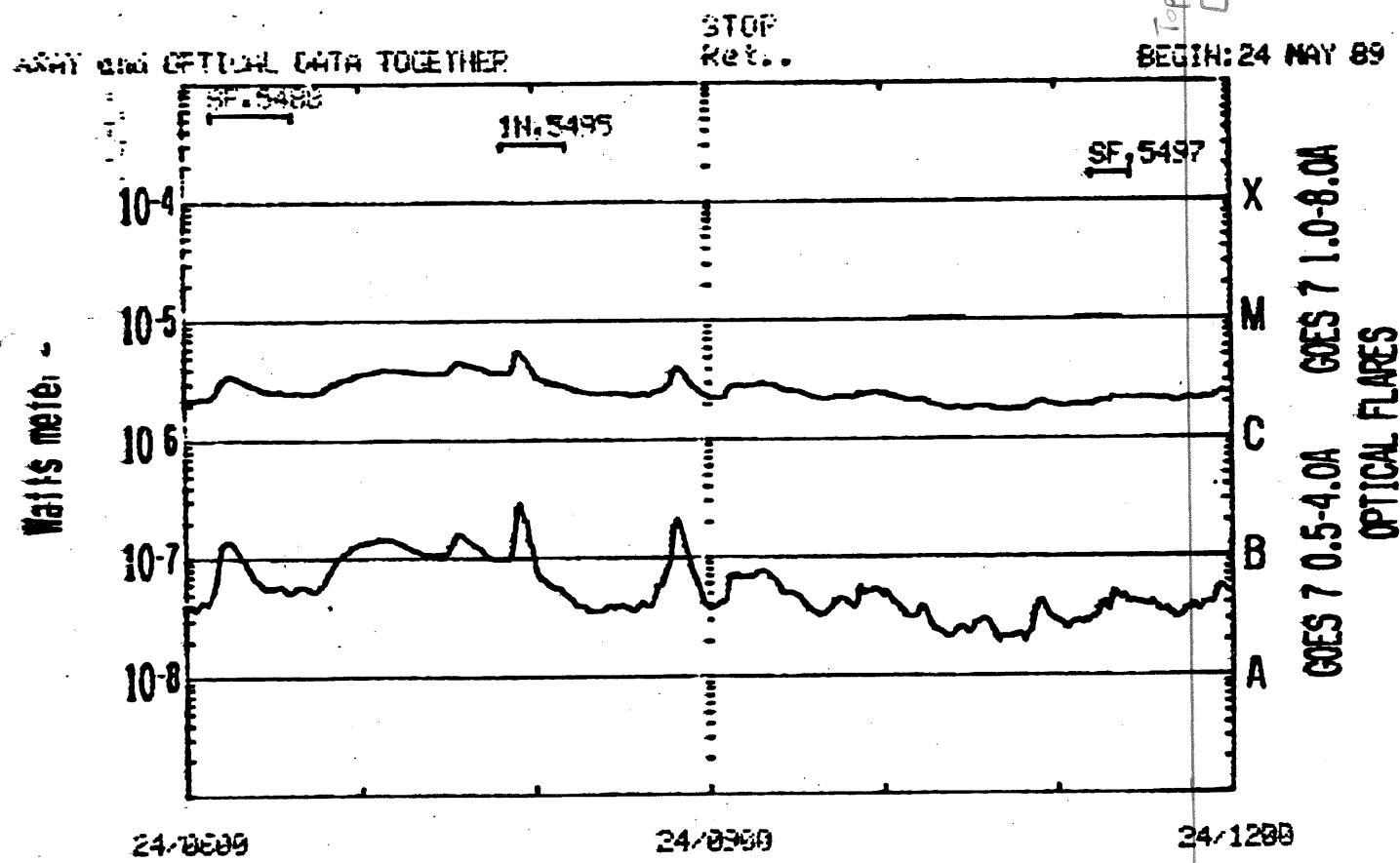
tstart=DOY144 11:43 from derivative=0
Event begins at 1.10 Solar Radii
radial acceleration=0.170E-02 km/sec**2

1989 Day

144

Top of ~~M~~ Front, 2nd order

[11:43]



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

SAA's
NIGHT
RUN: 1991UT
26 MAY 89

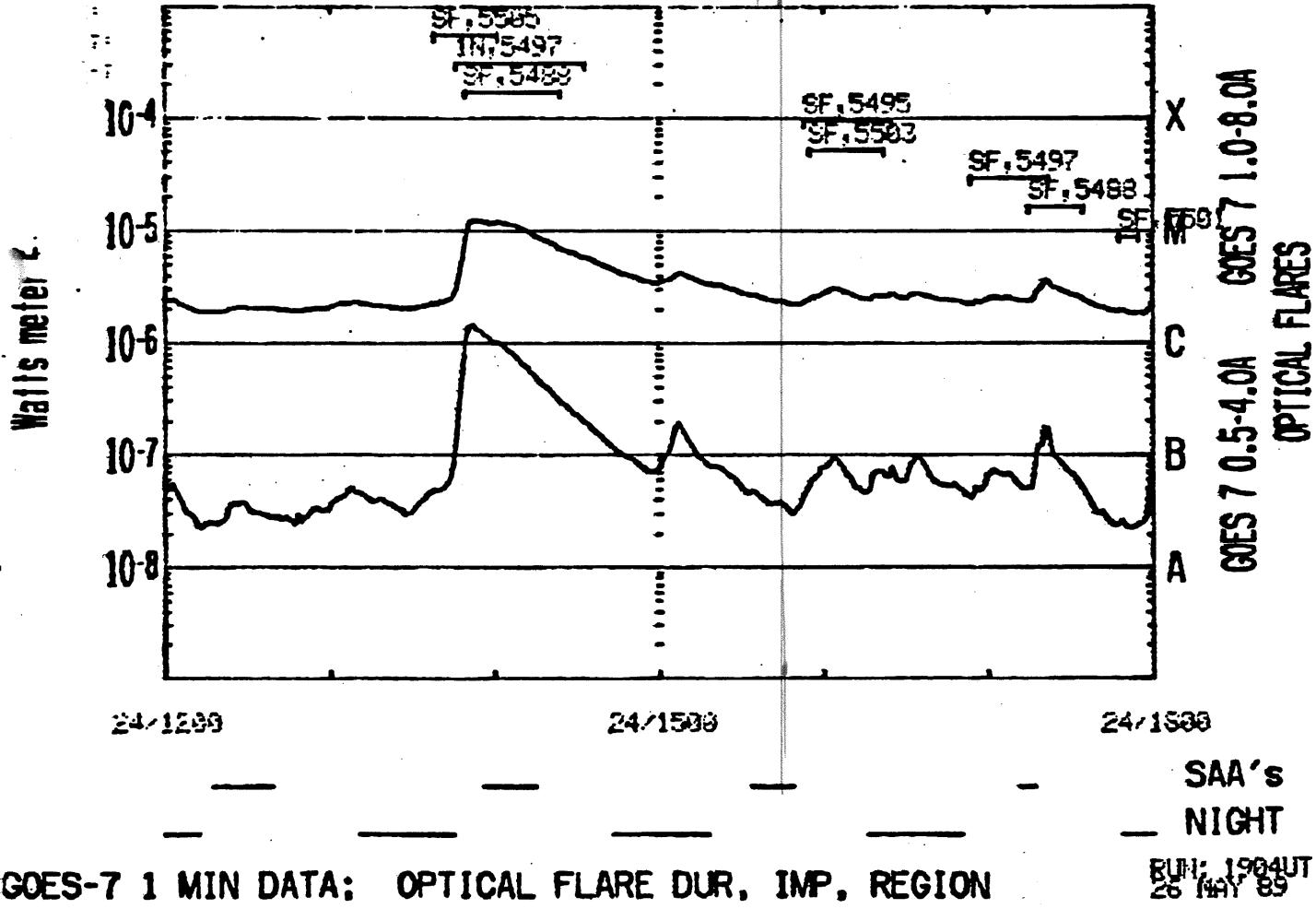
see next page
for 1st order fit

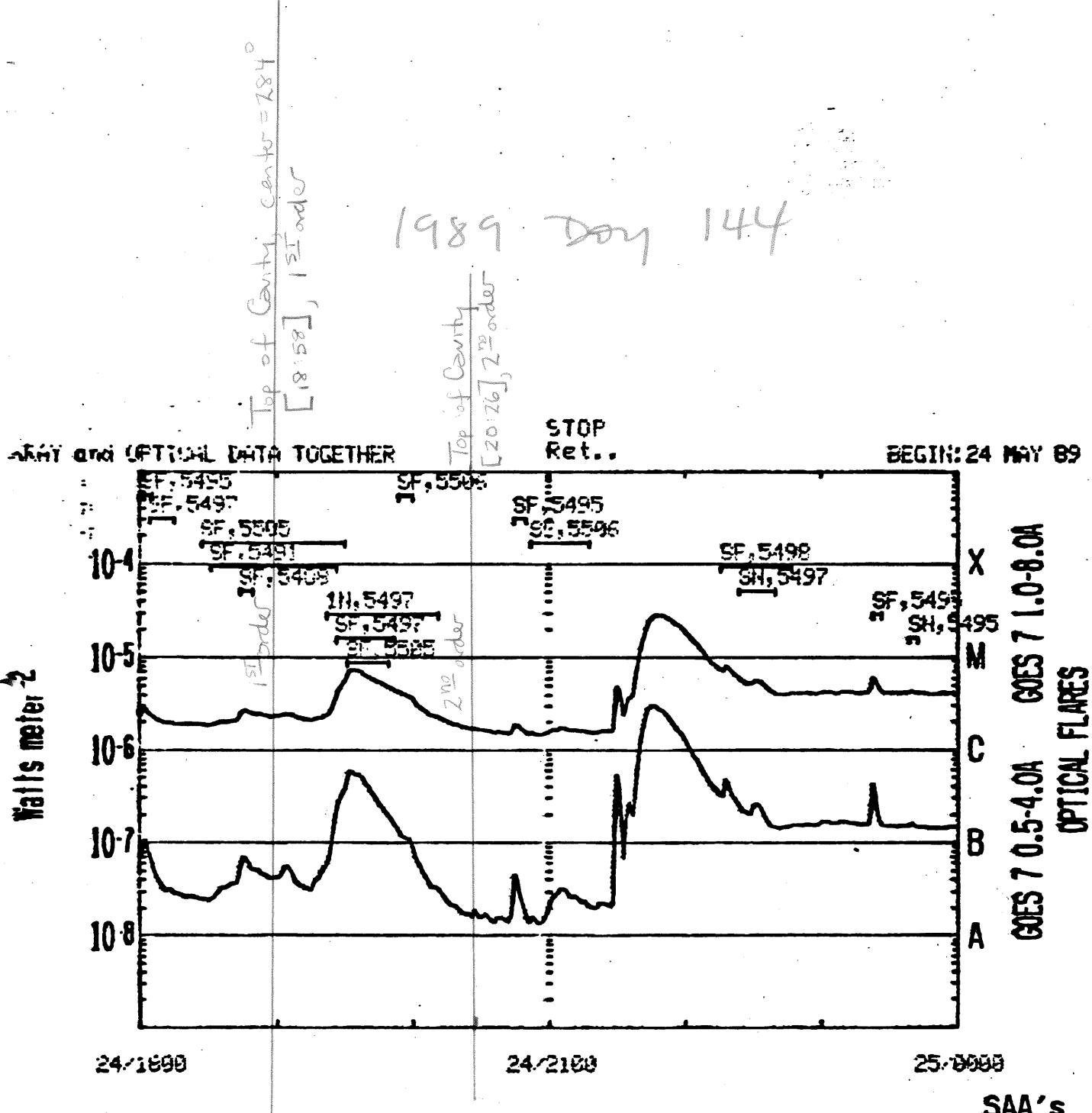
1989 Day 144

STOP
Ret..
Top of Front center = 284°
[15:43], 1st order

ARRAY and OPTICAL DATA TOGETHER

BEGIN: 24 MAY 89





SAA's
NIGHT

RUN: 1907UT
25 MAY 89

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

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1989	144	19:17:32	2.00	+/- 0.10	305.0	+/- 0.5	SMM
1989	144	20: 0:48	2.20	+/- 0.10	305.0	+/- 0.5	SMM
1989	144	20:50:20	2.40	+/- 0.20	305.0	+/- 0.5	SMM
1989	144	21:33:36	2.60	+/- 0.15	305.0	+/- 0.5	SMM
1989	144	21:58:24	2.80	+/- 0.20	305.0	+/- 0.5	SMM

Structure being measured:

Top of Front (Mound) *1st fuzzy loop*

OUTPUT:

START TIME:

Event began at t = 0 + -0.197E+03 +/- 0.205E+01 [minutes]

In more convenient units:

Event began at DOY 144 15:43 +/- 0.205E+01 [minutes]

Origin defined at DOY144 19: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 54. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.192E+01 +/- 0.179E-01 [solar radii]

c(2) = 0.464E-02 +/- 0.192E-03 [radii/min]

c(2) = 0.539E+02 +/- 0.223E+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)= 0.36188E-01 [radii] see Bevington pg. 114

error in c(2)= 0.30241E-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) = 305. +/- 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 19:17 = 0. km/sec

The TOTAL velocity at 19:17 = 54. km/sec

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

The TOTAL velocity at 20: 0 = 54. km/sec

The TANGENTIAL velocity at 20:50 = 0. km/sec

The TOTAL velocity at 20:50 = 54. km/sec

The TANGENTIAL velocity at 21:33 = 0. km/sec

The TOTAL velocity at 21:33 = 54. km/sec

The TANGENTIAL velocity at 21:58 = 0. km/sec

The TOTAL velocity at 21:58 = 54. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.32

Standard Deviation in start time measurement = 0.590E+02

Error in time = 0.14873E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.578E-03

Reduced Chi Squared = 0.715E-02

Chi Squared = 0.214E-01

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.994E+00

The probability that no LINEAR correlation exists between the variables = 0.5039E-03

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 angle	datatype
1989	144	19:17:32	2.00	+/- 0.10	305.0	+/- 0.5	SMM
1989	144	20: 0:48	2.20	+/- 0.10	305.0	+/- 0.5	SMM
1989	144	20:50:20	2.40	+/- 0.20	305.0	+/- 0.5	SMM
1989	144	21:33:36	2.60	+/- 0.15	305.0	+/- 0.5	SMM
1989	144	21:58:24	2.80	+/- 0.20	305.0	+/- 0.5	SMM

Structure being measured:

Top of Front (Mound)

OUTPUT:

START TIME:

tstart=DOY144 11:43 from derivative = 0

Event begins at 1.10 Solar Radii

Origin defined at DOY144 19: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.170E-02 +/- 0.174E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.194E+01 +/- 0.289E-01 [solar radii]
c(2) = 0.383E-02 +/- 0.852E-03 [radii/min]
c(2) = 0.445E+02 +/- 0.988E+01 [km/sec]
c(3) = 0.438E-05 +/- 0.450E-05 [radii/min**2]
c(3) = 0.170E-02 +/- 0.174E-02 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.52510E-01 [radii] Bevington pg 154 (8-30)

Exact error in c(1) = 0.78213E-02 [radii] Bevington pg 154 (8-28)

Approximate error in c(2) = 0.13065E-02 [radii/min] Bevington pg 154 (8-30)

Exact error in c(2) = 0.32728E-03 [radii/min] Bevington pg 154 (8-28)

Approximate error in c(3) = 0.64805E-05 [radii/min**2] Bevington pg 154 (8-30)

Exact error in c(3) = 0.21115E-05 [radii/min**2] 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) = 305. +/- 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 19:17 = 0. km/sec

The TOTAL velocity at 19:17 = 46. km/sec

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

The TOTAL velocity at 20: 0 = 51. km/sec

The TANGENTIAL velocity at 20:50 = 0. km/sec

The TOTAL velocity at 20:50 = 56. km/sec

The TANGENTIAL velocity at 21:33 = 0. km/sec

The TOTAL velocity at 21:33 = 60. km/sec

The TANGENTIAL velocity at 21:58 = 0. km/sec

The TOTAL velocity at 21:58 = 63. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.32

Standard Deviation in start time measurement = 0.590E+02

Value of reduced Chi Squared returned from nllst2 = 0.586E-03

Reduced Chi Squared = 0.605E-02

Chi Squared = 0.121E-01

The probability for exceeding chi square = 0.999E+00

For a second order fit 3 correlation coefficients are given:

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

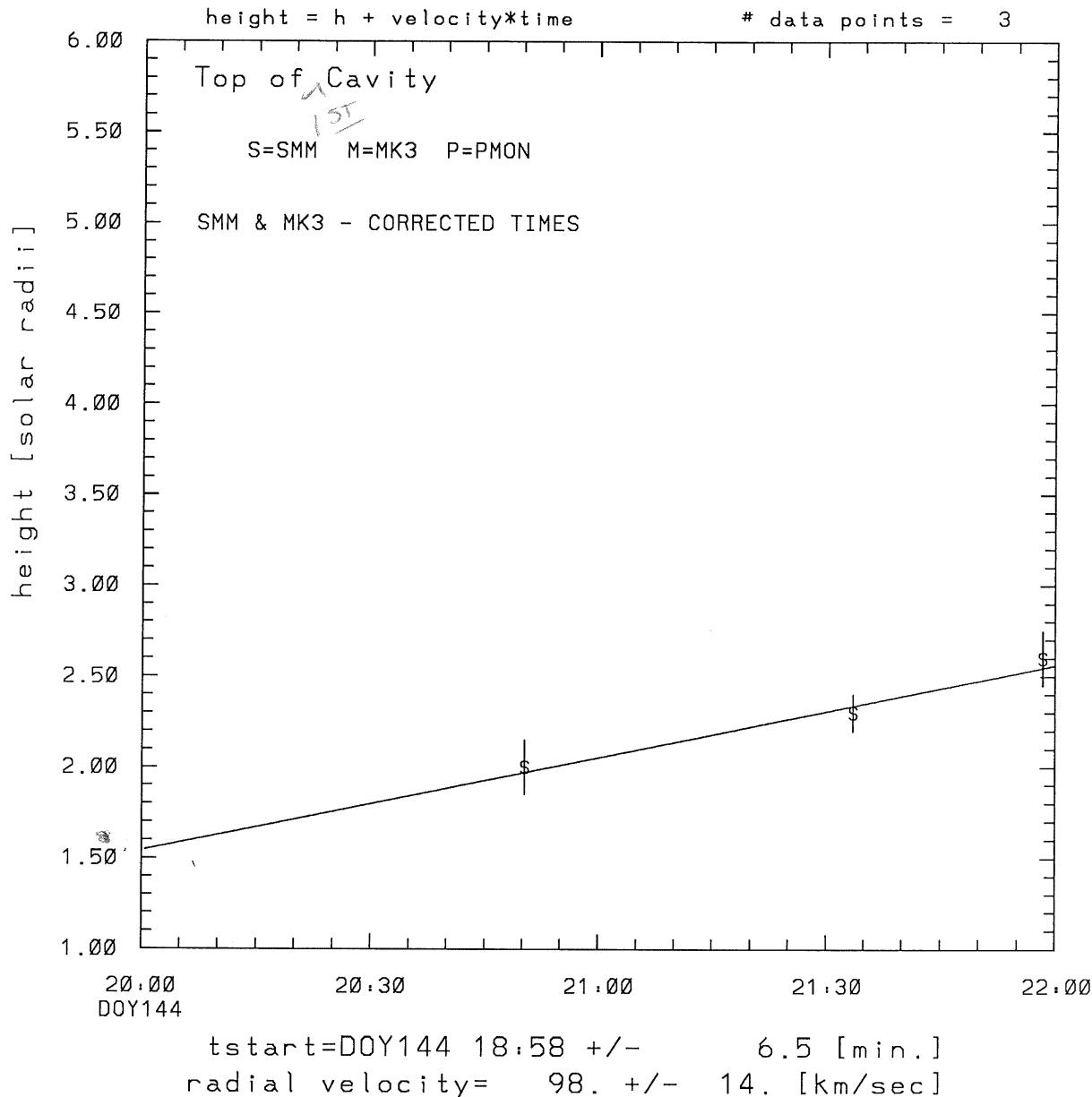
The correlation between the data and the term linear in time = 0.1073E+01

The correlation between the data and the time **2 term = 0.9952E+00

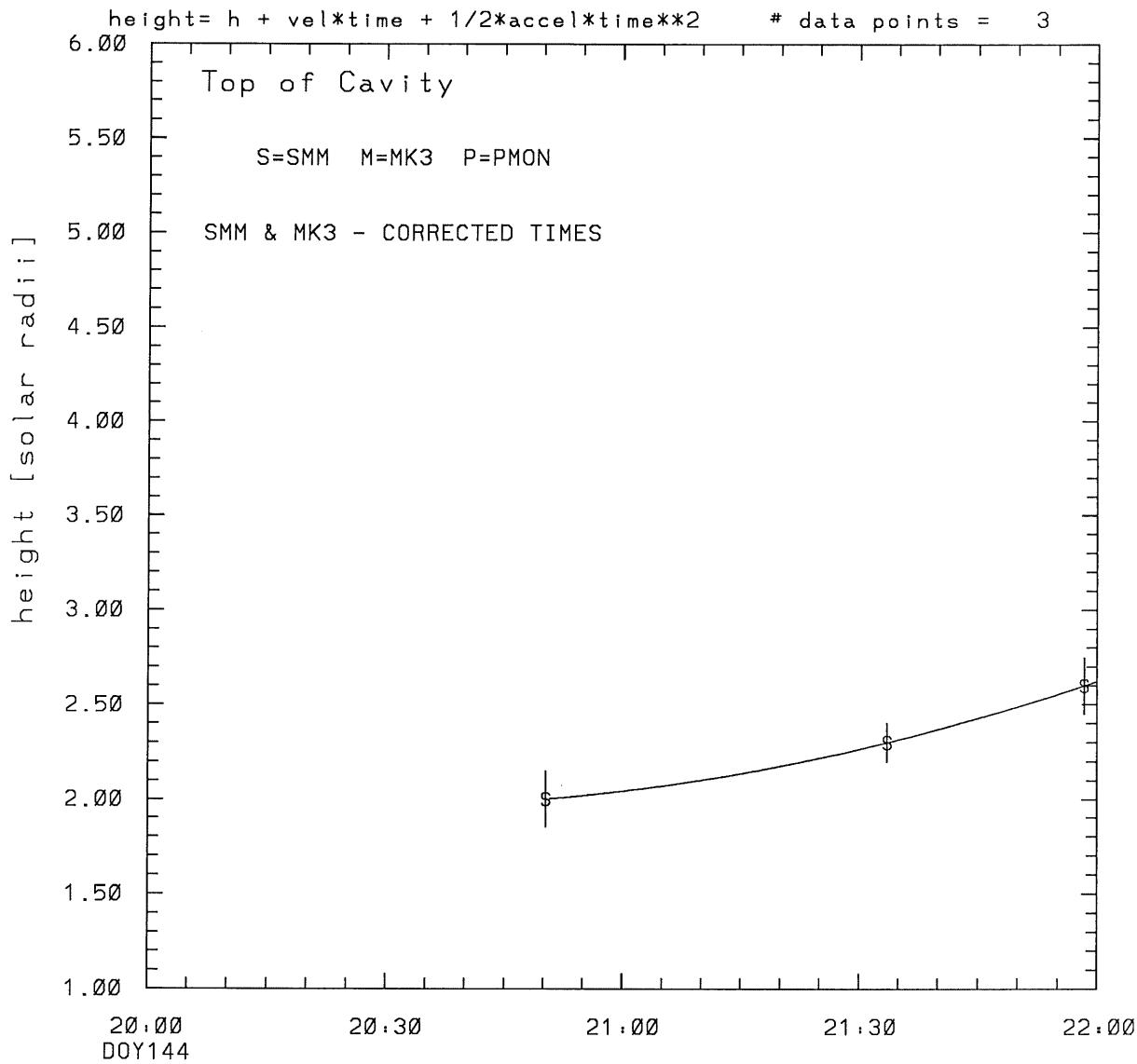
The correlation between the data and the complete equation of motion = 0.9953E+00

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

SMM C/P 1989 DOY144 305 +/- 0 degrees

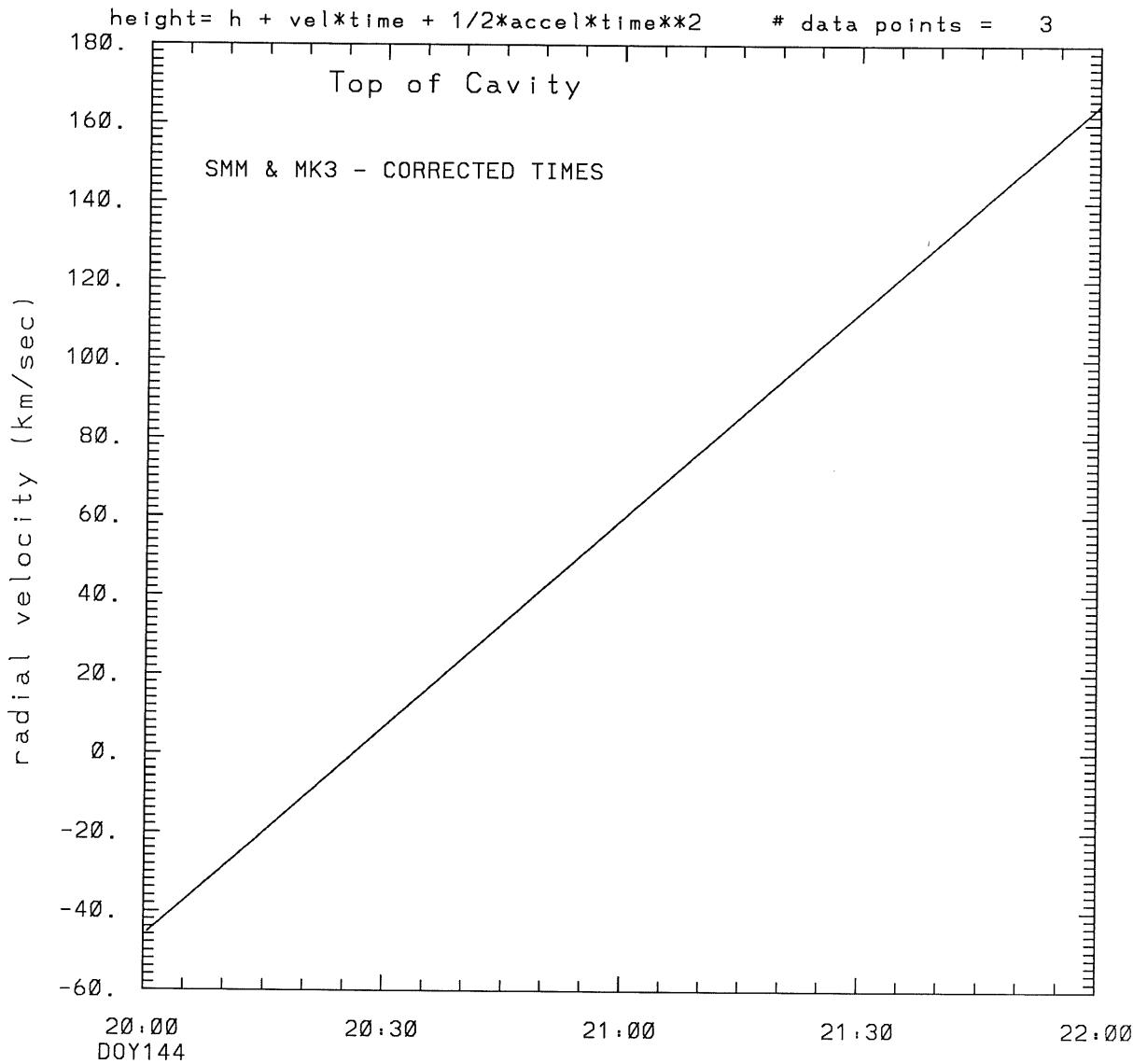


SMM C/P 1989 DOY144 305 +/- 0 degrees



tstart=DOY144 20:26 from derivative=0
Event begins at 1.96 Solar Radii
radial acceleration= 0.0293 +/- 0.0000 [km/sec**2]

SMM C/P 1989 DOY144 305 +/- 0 degrees



tstart=DOY144 20:26 from derivative=0
Event begins at 1.96 Solar Radii
radial acceleration=0.293E-01 km/sec**2

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1989	144	20:50:20	2.00	+/- 0.15	305.0	+/- 0.5	SMM
1989	144	21:33:36	2.30	+/- 0.10	305.0	+/- 0.5	SMM
1989	144	21:58:24	2.60	+/- 0.15	305.0	+/- 0.5	SMM

Structure being measured:

Top of Cavity

OUTPUT:

START TIME:

Event began at t = 0 + -0.640E+02 +/- 0.653E+01 [minutes]

In more convenient units:

Event began at DOY 144 18:58 +/- 0.653E+01 [minutes]

Origin defined at DOY144 20: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 98. +/- 14. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.154E+01 +/- 0.109E+00 [solar radii]

c(2) = 0.848E-02 +/- 0.118E-02 [radii/min]

c(2) = 0.984E+02 +/- 0.137E+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)= 0.13402E+00 [radii] see Bevington pg. 114

error in c(2)= 0.14590E-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) = 305. +/- 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 20:50 = 0. km/sec

The TOTAL velocity at 20:50 = 98. km/sec

The TANGENTIAL velocity at 21:33 = 0. km/sec

The TOTAL velocity at 21:33 = 98. km/sec

The TANGENTIAL velocity at 21:58 = 0. km/sec

The TOTAL velocity at 21:58 = 98. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.30

Standard Deviation in start time measurement = 0.281E+02

Error in time = 0.83778E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.238E-02

Reduced Chi Squared = 0.120E-01

Chi Squared = 0.120E-01

The probability for exceeding chi square = 0.961E+00

The correlation coefficient = 0.988E+00

The probability that no LINEAR correlation exists between the variables = 0.9892E-01

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

This is a 2 order run

INPUT:

year	doy	time	radii	radius	angle	error in angle	datatype
1989	144	20:50:20	2.00	+/- 0.15	305.0	+/- 0.5	SMM
1989	144	21:33:36	2.30	+/- 0.10	305.0	+/- 0.5	SMM
1989	144	21:58:24	2.60	+/- 0.15	305.0	+/- 0.5	SMM

Structure being measured:

Top of Cavity

OUTPUT:

START TIME:

tstart=DOY144 20:26 from derivative = 0

Event begins at 1.96 Solar Radii

Origin defined at DOY144 20: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.293E-01 +/- 0.101E-06 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.201E+01 +/- 0.169E-05 [solar radii]
c(2) = -0.398E-02 +/- 0.435E-07 [radii/min]
c(2) = -0.462E+02 +/- 0.504E-03 [km/sec]
c(3) = 0.759E-04 +/- 0.262E-09 [radii/min**2]
c(3) = 0.293E-01 +/- 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) = 305. +/- 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 20:50 = 0. km/sec

The TOTAL velocity at 20:50 = 42. km/sec

The TANGENTIAL velocity at 21:33 = 0. km/sec

The TOTAL velocity at 21:33 = 119. km/sec

The TANGENTIAL velocity at 21:58 = 0. km/sec

The TOTAL velocity at 21:58 = 162. 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!