

1989 DOY 048

MKIII: 68 images

Event in southeast: Small bright mound [prominence?] appears at ~21:35 from 146-156 degrees pa at 1.25 rsun. Material appears just north of mound and brightens until the end of the observing day. By ~23:00 material is visible from 128-159 degrees. Depletion region is visible above material.

PMON:

Large, evolving prominence. Changes dramatically over the observation period 18:23 - 1:44.
Width of Prominence Loop: 41 degrees at 1.01 rsun.
Center of Prominence Loop: 128 degrees pa.
Note: Prominence extends to 157 degrees at 1.5 rsun.

SMM:

SMM sees fuzzy mound followed by a structured prominence. By 4:20 the prominence has a 'z' shaped front. We measured a lower and upper point for the front at 4:20 and 4:45. The velocity of the prominence was computed twice, using the upper and lower positions from the SMM dataset.

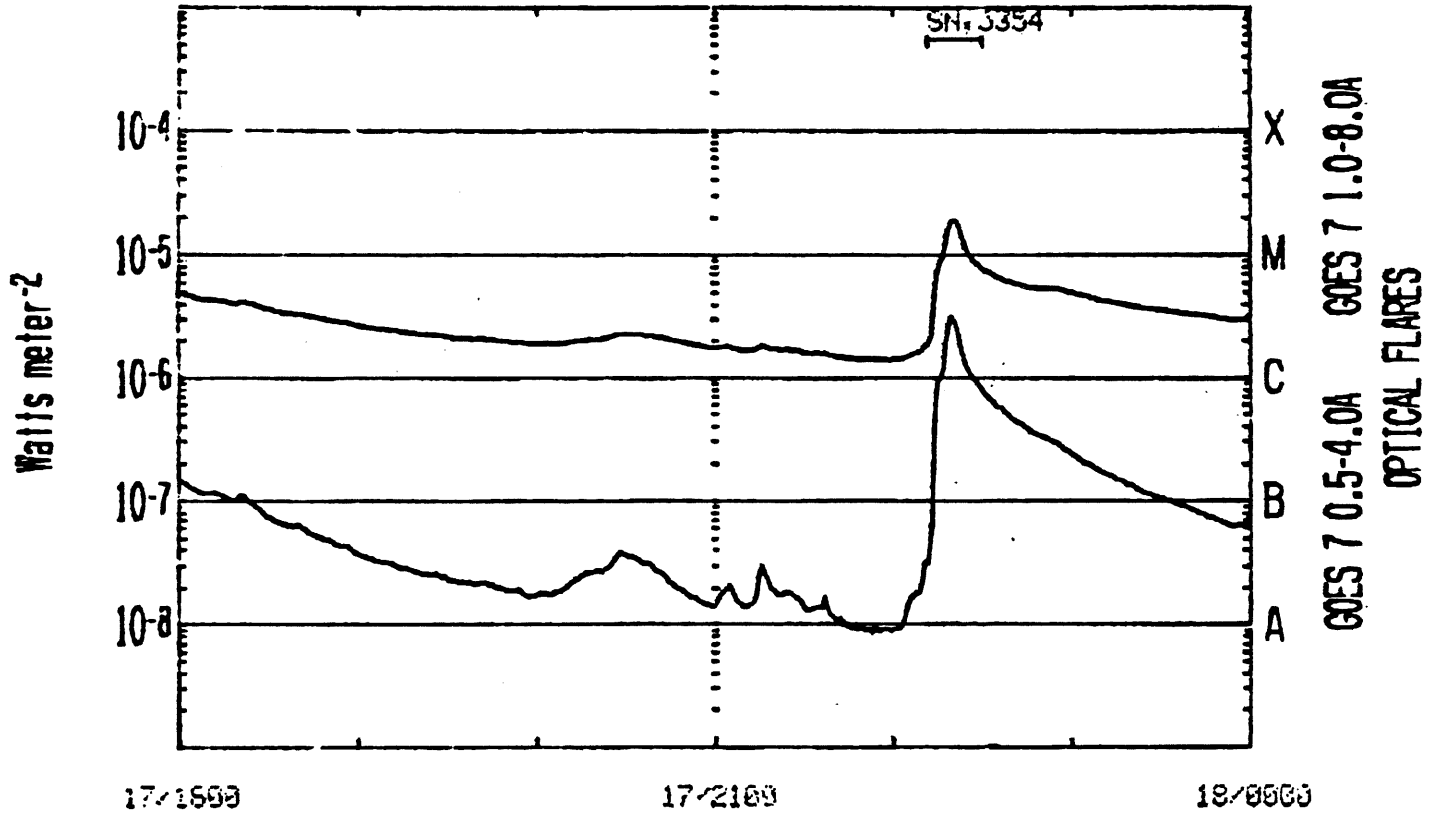
**SEE MKIII/SMM
1989 COMPOSITE
NOTEBOOK
FOR ADDITIONAL
TRAJECTORIES**

AR5354 (N31 W84)

READ AND OPTICAL DATA TOGETHER

STOP
Ret..

BEGIN: 17 FEB 89



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

SAA's
NIGHT

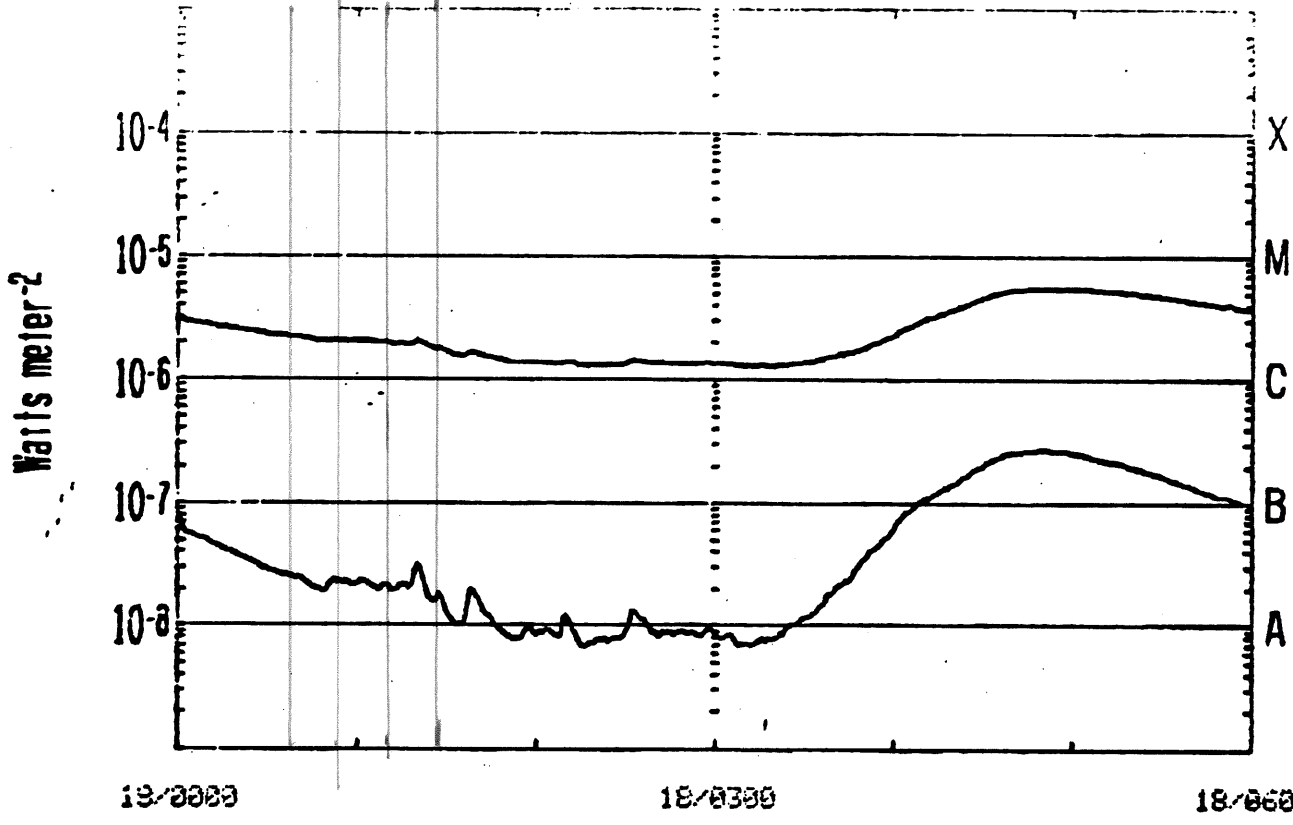
RUN: 2244UT
24 FEB 89

1989 July 049

SMM only

Top of Prominence [0:38] @ 130° 1st order
" [0:52] " 2nd order

Top of Prominence Leading Edge
@ 128° [1:24] 1st order
[1:09] 2nd order



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

18/0300

18/0300

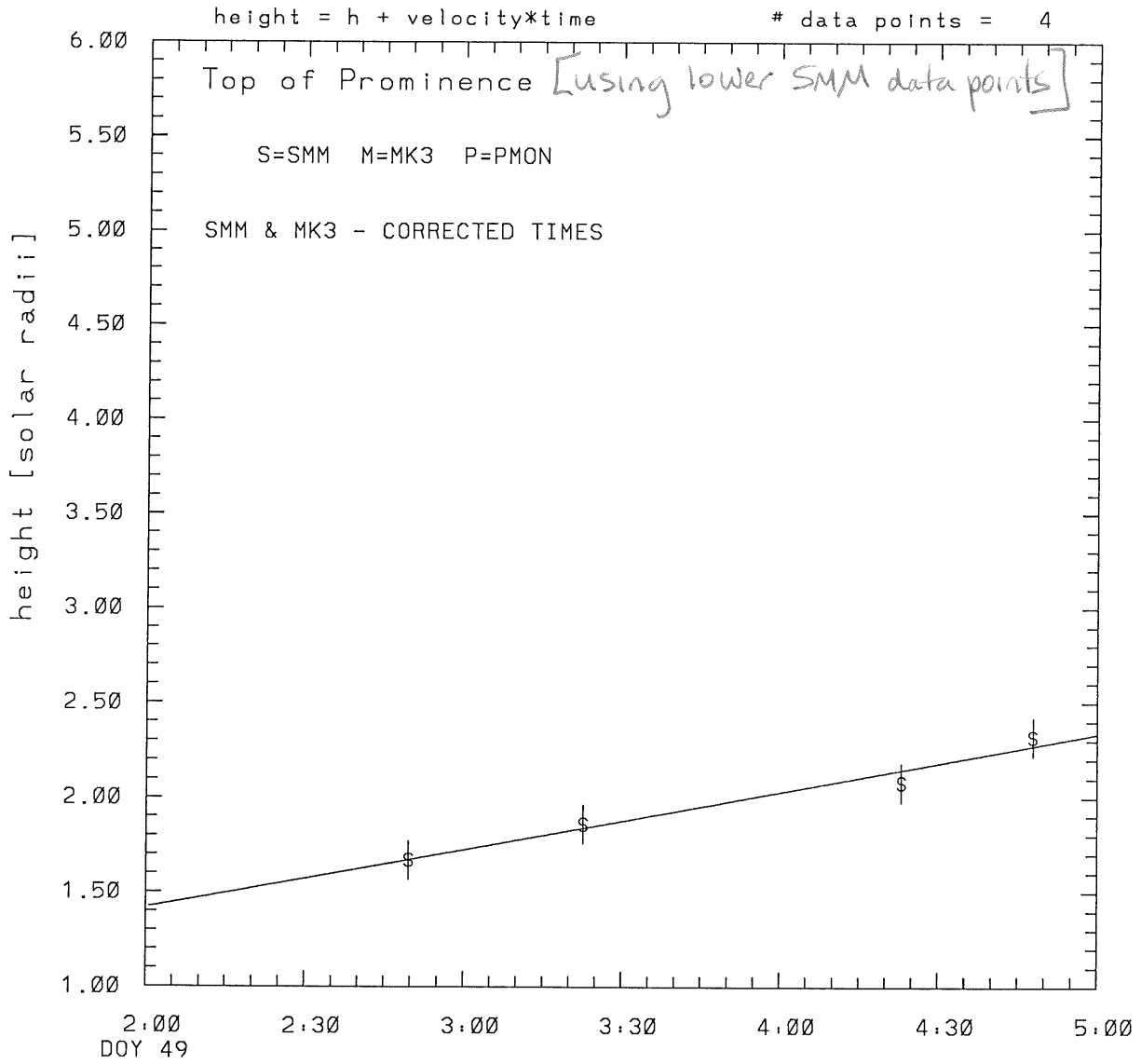
18/0600

— SAA's
— NIGHT

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

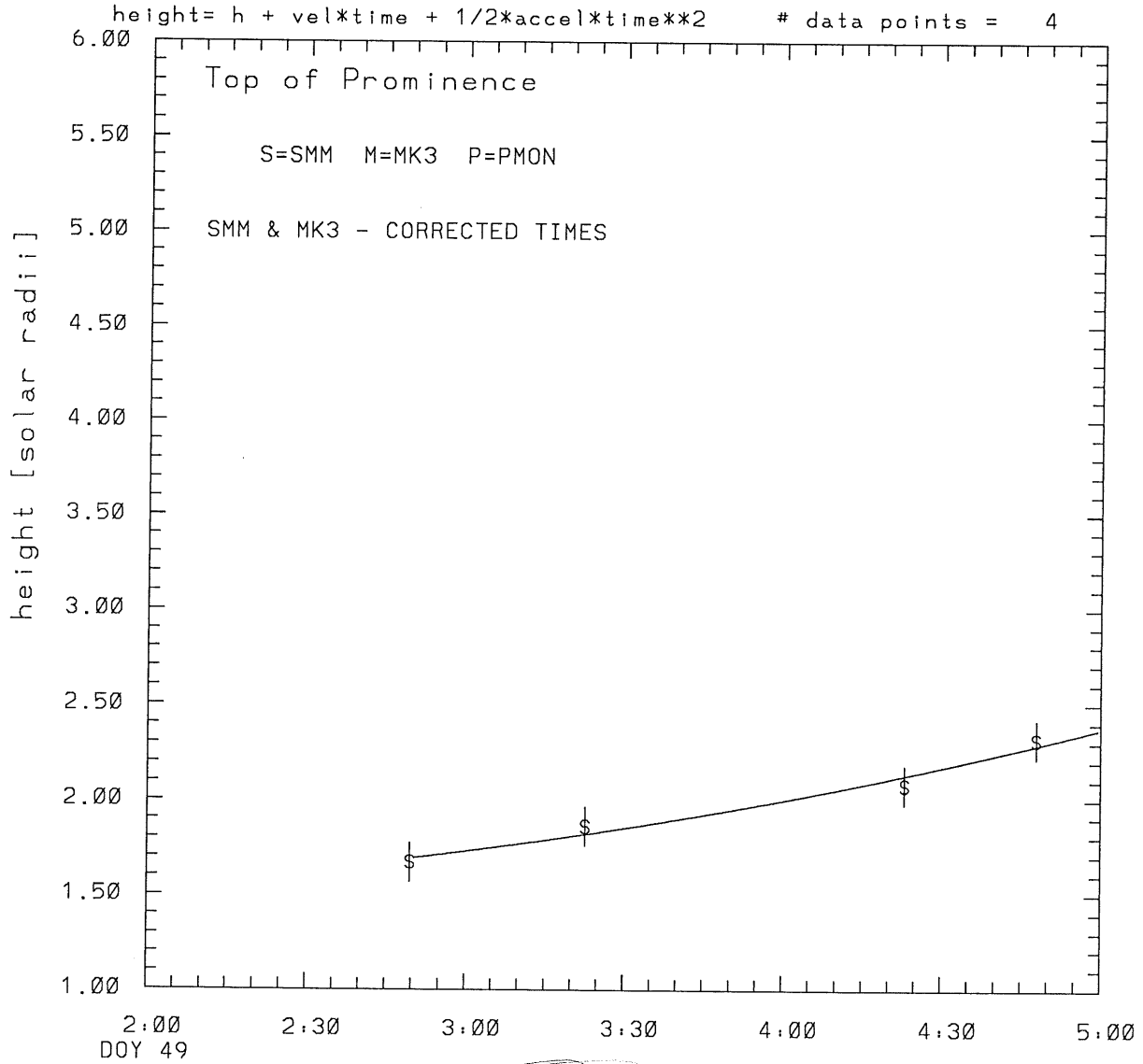
RUN: 2135UT
25 FEB 89

SMM C/P 1989 DOY 49 130 +/- 0 degrees



tstart=DOY 49 0:38 +/- 3.5 [min.]
radial velocity= 59. +/- 6. [km/sec]

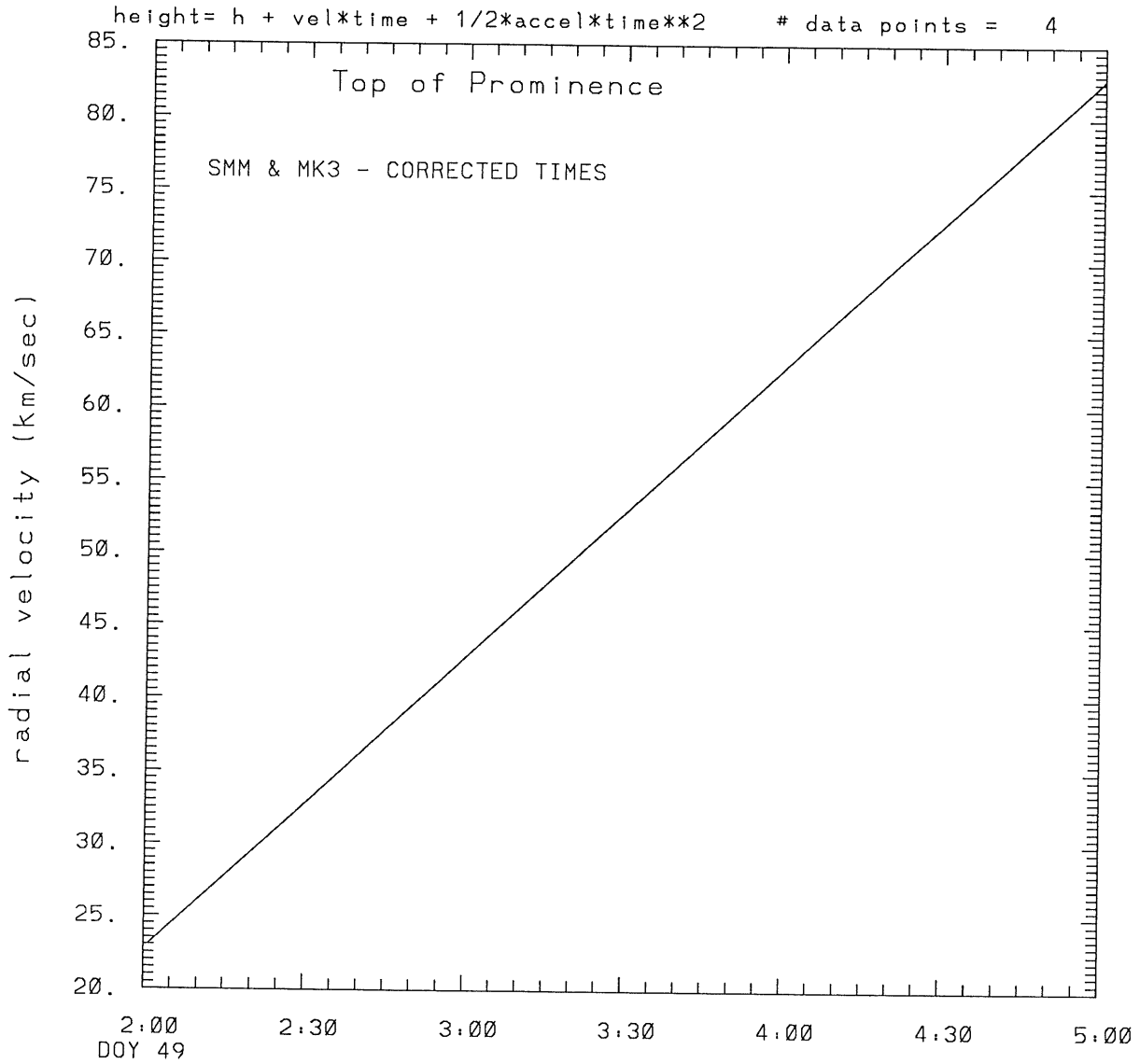
SMM C/P 1989 DOY 49 130 +/- 0 degrees



tstart=DOY 48 24:52 from derivative=0
Event begins at 1.49 Solar Radii
radial acceleration = 0.0056 +/- 0.0080 [km/sec**2]

049 00:52 ? yes

SMM C/P 1989 DOY 49 130 +/- 0 degrees



tstart=DOY 48 24:52 from derivative=0
Event begins at 1.49 Solar Radii
radial acceleration=0.555E-02 km/sec**2

This is a 1 order run

INPUT:

year	doy	time	radii	radius	error in angle	error in angle	datatype
1989	49	2:49:38	1.67	+/- 0.10	130.0	+/- 0.5	SMM
1989	49	3:22:42	1.86	+/- 0.10	130.0	+/- 0.5	SMM
1989	49	4:23: 4	2.08	+/- 0.10	130.0	+/- 0.5	SMM
1989	49	4:47:52	2.32	+/- 0.10	130.0	+/- 0.5	SMM

Structure being measured:

Top of Prominence

OUTPUT:

START TIME:

Event began at $t = 0 + -0.821E+02 +/- 0.352E+01$ [minutes]

In more convenient units:

Event began at DOY 49 0:38 +/- 0.352E+01 [minutes]

Origin defined at DOY 49 2: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 59. +/- 6. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.142E+01 +/- 0.623E-01 [solar radii]
c(2) = 0.509E-02 +/- 0.517E-03 [radii/min]
c(2) = 0.591E+02 +/- 0.600E+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)= 0.76262E-01 [radii] see Bevington pg. 114

error in c(2)= 0.63360E-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) = 130. +/- 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 2:49 = 0. km/sec

The TOTAL velocity at 2:49 = 59. km/sec

The TANGENTIAL velocity at 3:22 = 0. km/sec

The TOTAL velocity at 3:22 = 59. km/sec

The TANGENTIAL velocity at 4:23 = 0. km/sec

The TOTAL velocity at 4:23 = 59. km/sec

The TANGENTIAL velocity at 4:47 = 0. km/sec

The TOTAL velocity at 4:47 = 59. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.28

Standard Deviation in start time measurement = 0.470E+02

Error in time = 0.16532E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.236E-02

Reduced Chi Squared = 0.115E-01

Chi Squared = 0.230E-01

The probability for exceeding chi square = 0.998E+00

The correlation coefficient = 0.985E+00

The probability that no LINEAR correlation exists between the variables = 0.1513E-01

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	49	2:49:38	1.67	+/- 0.10	130.0	+/- 0.5	SMM	
1989	49	3:22:42	1.86	+/- 0.10	130.0	+/- 0.5	SMM	
1989	49	4:23: 4	2.08	+/- 0.10	130.0	+/- 0.5	SMM	
1989	49	4:47:52	2.32	+/- 0.10	130.0	+/- 0.5	SMM	

Structure being measured:

Top of Prominence

OUTPUT:

START TIME:

tstart=DOY 48 24:52 from derivative = 0

Event begins at 1.49 Solar Radii

Origin defined at DOY 49 2: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.555E-02 +/- 0.797E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.156E+01 +/- 0.211E+00 [solar radii]
c(2) = 0.196E-02 +/- 0.453E-02 [radii/min]
c(2) = 0.228E+02 +/- 0.526E+02 [km/sec]
c(3) = 0.144E-04 +/- 0.206E-04 [radii/min**2]
c(3) = 0.555E-02 +/- 0.797E-02 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.29810E+00 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.12472E+00 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.64068E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.30346E-02 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.29156E-04 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.14056E-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) = 130. +/- 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 2:49 = 0. km/sec

The TOTAL velocity at 2:49 = 39. km/sec

The TANGENTIAL velocity at 3:22 = 0. km/sec

The TOTAL velocity at 3:22 = 50. km/sec

The TANGENTIAL velocity at 4:23 = 0. km/sec

The TOTAL velocity at 4:23 = 70. km/sec

The TANGENTIAL velocity at 4:47 = 0. km/sec

The TOTAL velocity at 4:47 = 79. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.28

Standard Deviation in start time measurement = 0.470E+02

Value of reduced Chi Squared returned from nllst2 = 0.285E-02

Reduced Chi Squared = 0.154E-01

Chi Squared = 0.154E-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 = 0.9849E+00

The correlation between the data and the time**2 term = 0.9867E+00

The correlation between the data and the complete equation of motion = 0.9758E+00

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