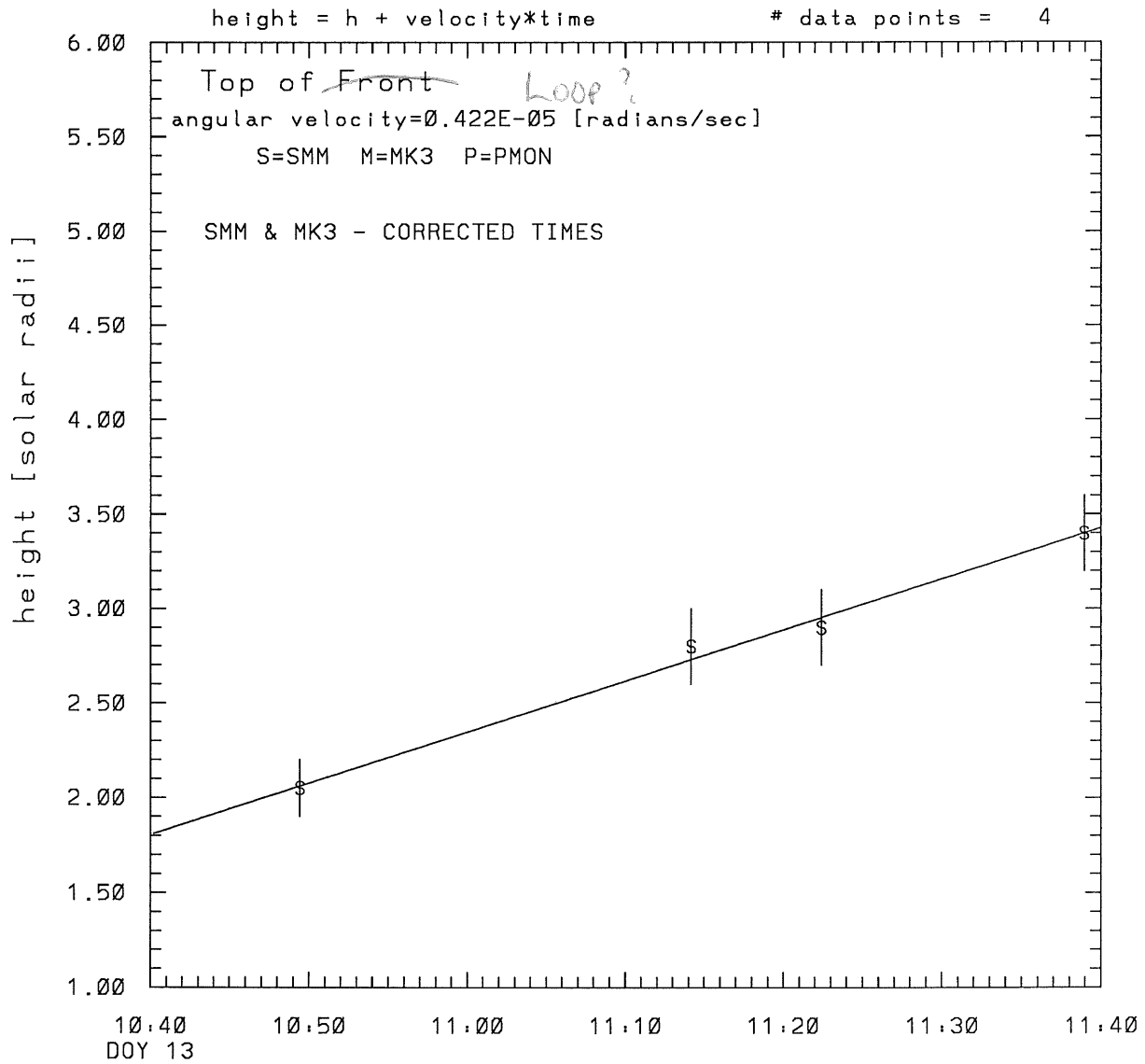


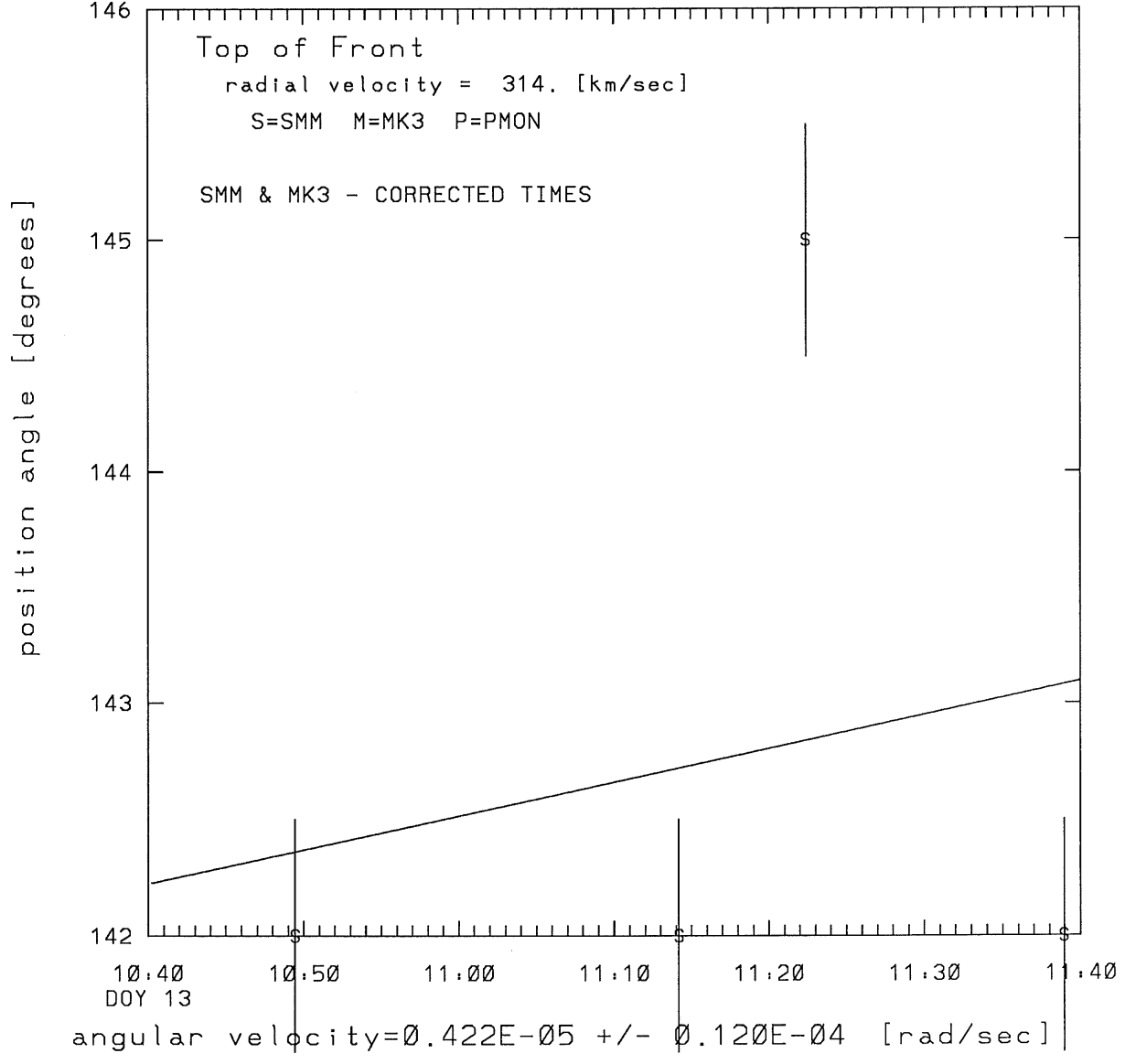
SMM C/P 1989 DOY 13 142 +/- 3 degrees



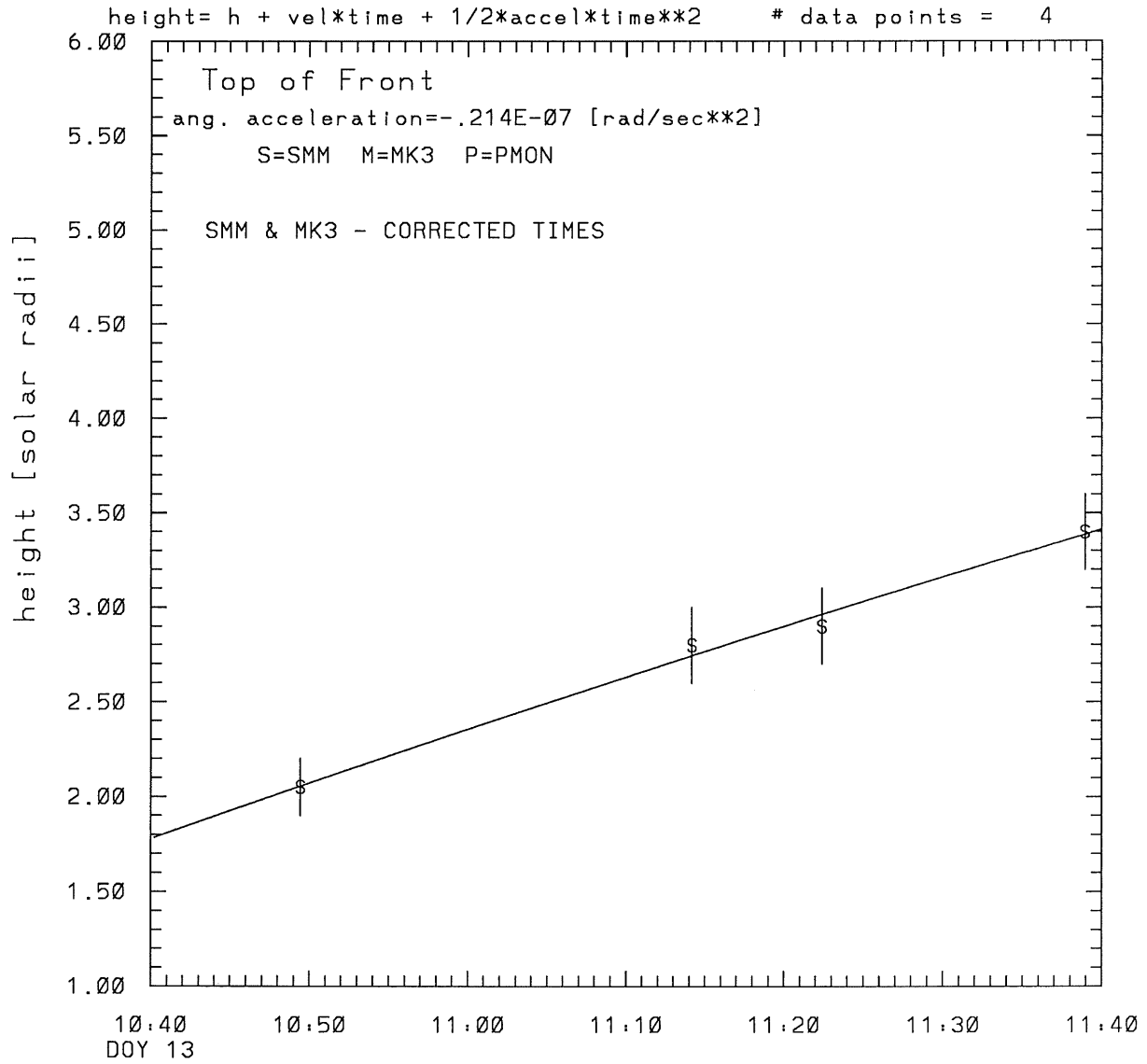
tstart=DOY 13 10:12 +/- 0.2 [min.]
radial velocity= 314. +/- 14. [km/sec]

SMM C/P 1989 DOY 13 142 +/- 3 degrees

angle = initial angle + angular velocity * time # data points = 4



SMM C/P 1989 DOY 13 142 +/- 3 degrees

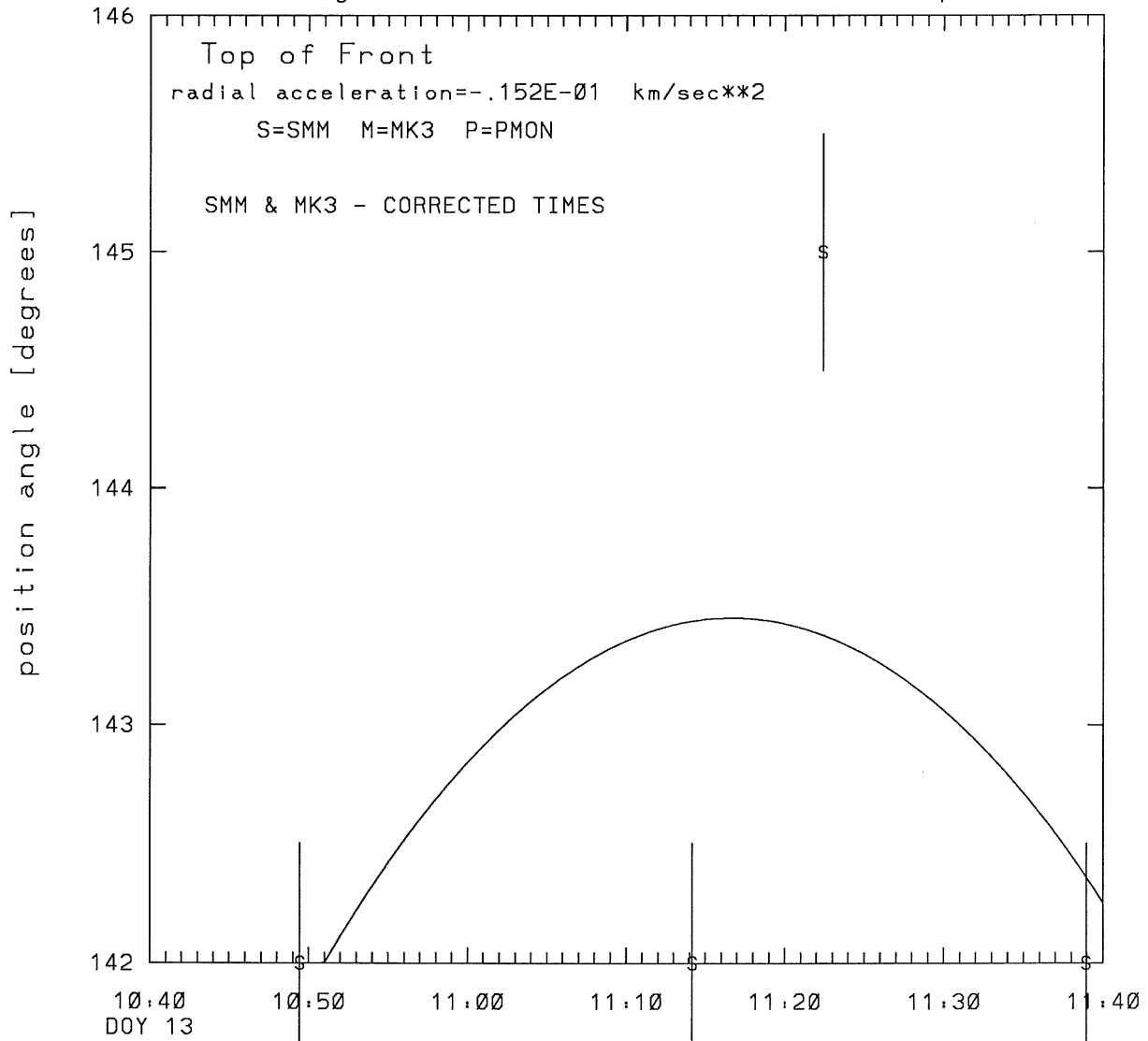


tstart=DOY 13 10:15 +/- 47.5 [min.]

radial acceleration = $-0.0152 +/- 0.0389$ [km/sec**2]

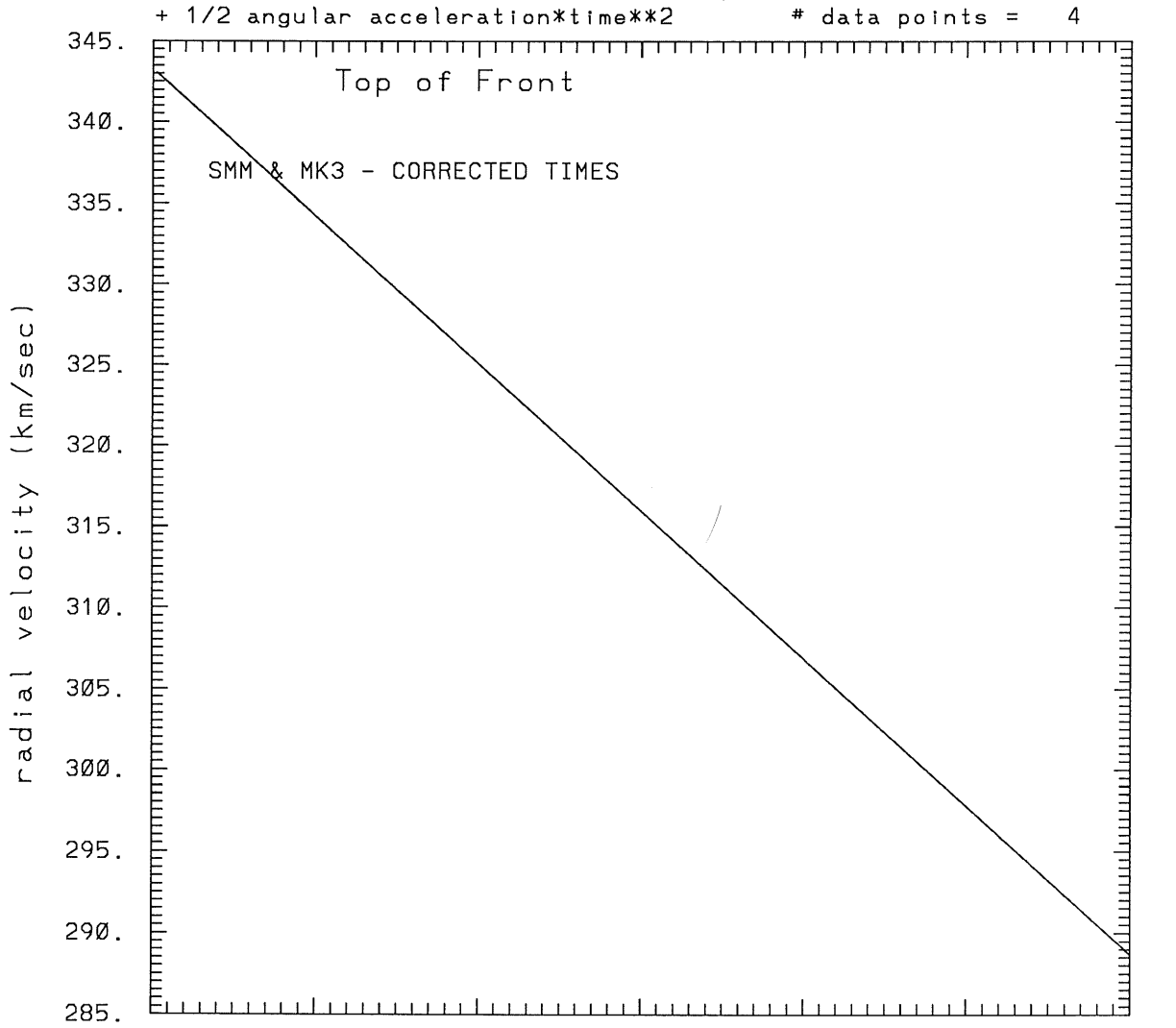
SMM C/P 1989 DOY 13 142 +/- 3 degrees

angle = initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2 # data points = 4



angular acceleration = $-.214E-07$ +/- $0.262E-07$ [rad/sec**2]

SMM C/P 1989 DOY 13 142 +/- 3 degrees



DOY 13

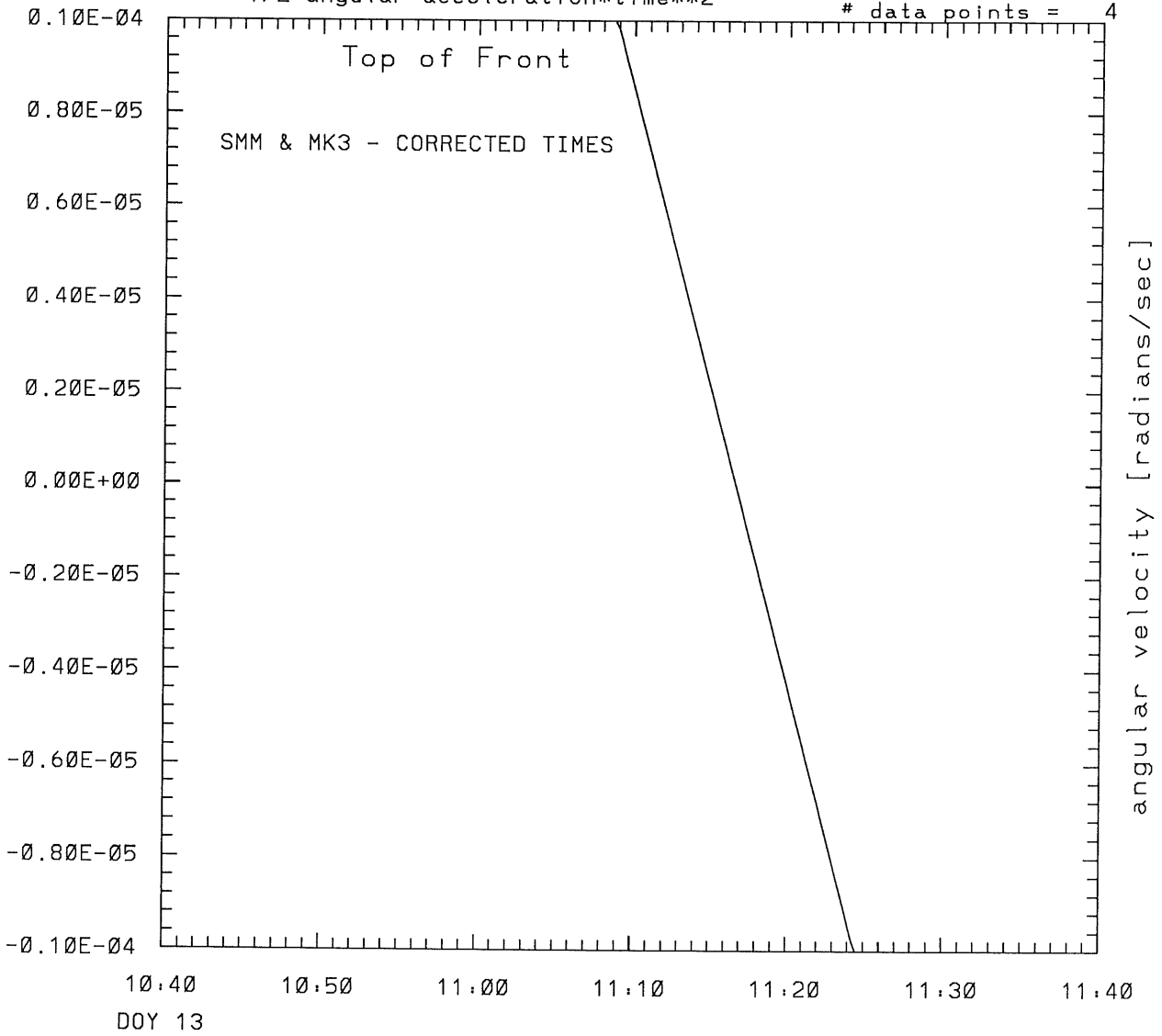
tstart=DOY 13 10:15 +/- 47.5 [min.]

radial acceleration=-.152E-01 km/sec**2

SMM C/P 1989 DOY 13 142 +/- 3 degrees

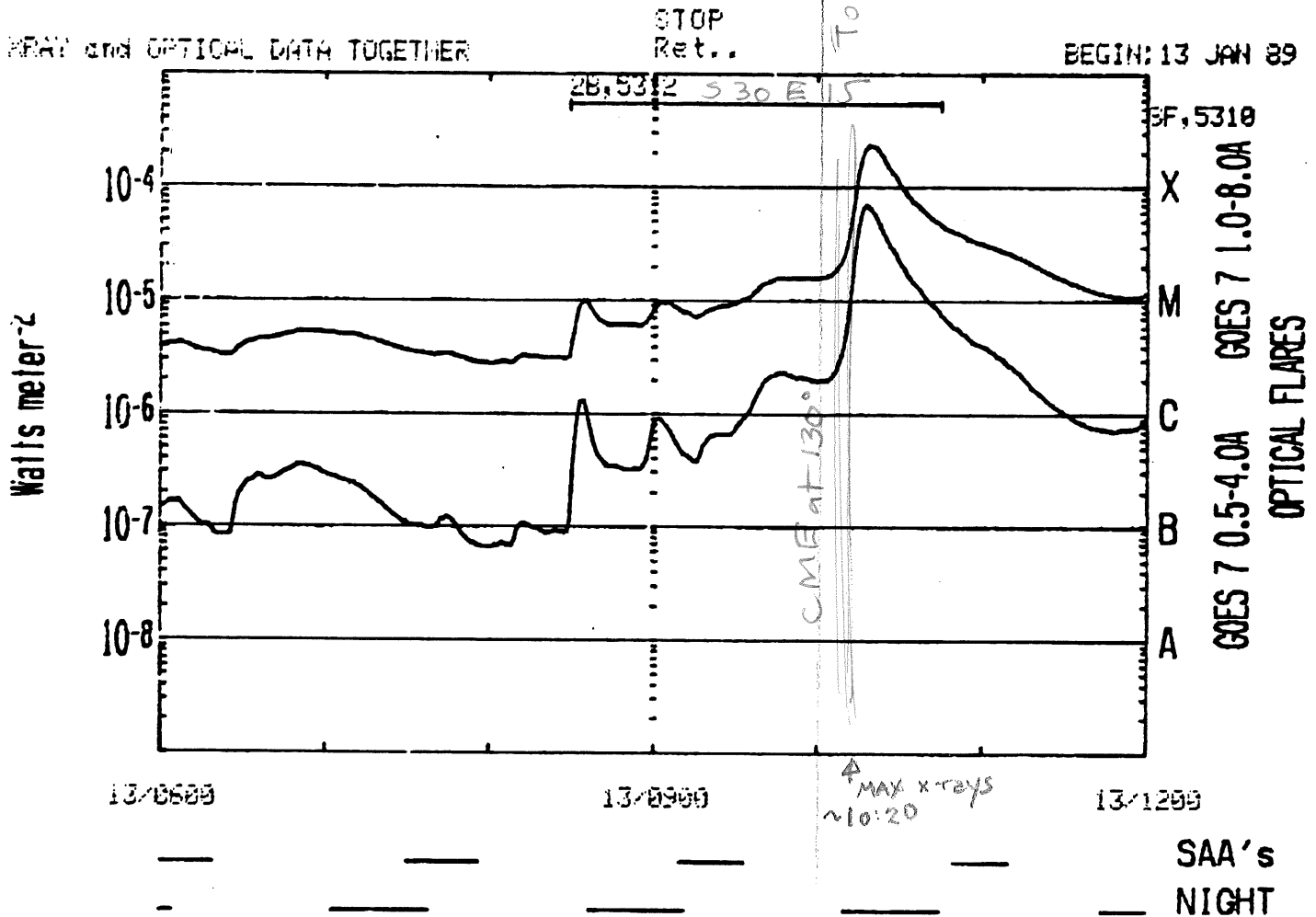
$$\text{angle} = \text{initial angle} + \text{angular velocity} * \text{time} + \frac{1}{2} \text{angular acceleration} * \text{time} ** 2$$

data points = 4



angular acceleration = $-.214E-07 \pm 0.262E-07$ [rad/sec**2]

1989 Day 13



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

RUN: 1700UT
16 JAN 89

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	13	10:49:26	2.05 +/- 0.15	142.0 +/- 0.5	0.5	SMM	
1989	13	11:14:11	2.80 +/- 0.20	142.0 +/- 0.5	0.5	SMM	
1989	13	11:22:25	2.90 +/- 0.20	145.0 +/- 0.5	0.5	SMM	
1989	13	11:38:56	3.40 +/- 0.20	142.0 +/- 1.0	1.0	SMM	

Structure being measured:
Top of Loop(?)

OUTPUT:

START TIME:

Event began at t = 0 + -0.297E+02 +/- 0.204E+00 [minutes]
In more convenient units:
Event began at DOY 13 10:12 +/- 0.204E+00 [minutes]

Origin defined at DOY 13 10:40

RADIAL INFORMATION:

RADIAL VELOCITY = 314. +/- 14. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.180E+01 +/- 0.456E-01 [solar radii]
c(2) = 0.271E-01 +/- 0.123E-02 [radii/min]
c(2) = 0.314E+03 +/- 0.142E+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)= 0.70633E-01 [radii] see Bevington pg. 114
error in c(2)= 0.17482E-02 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = 0.1244E-04 +/- 0.1296E-04 [radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 142. +/- 2. [degrees]
a(2) = 0.428E-01 +/- 0.445E-01 [degrees/min]
a(2) = 0.124E-04 +/- 0.130E-04 [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, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 10:49 = 18. km/sec

The RADIAL velocity at 10:49 = 314. km/sec

The TOTAL velocity at 10:49 = 315. km/sec

The TANGENTIAL velocity at 11:14 = 24. km /sec

The RADIAL velocity at 11:14 = 314. km/sec

The TOTAL velocity at 11:14 = 315. km/sec

The TANGENTIAL velocity at 11:22 = 25. km /sec

The RADIAL velocity at 11:22 = 314. km/sec

The TOTAL velocity at 11:22 = 315. km/sec

The TANGENTIAL velocity at 11:38 = 29. km /sec

The RADIAL velocity at 11:38 = 314. km/sec

The TOTAL velocity at 11:38 = 315. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.56

Standard Deviation in start time measurement = 0.179E+02

Error in time = 0.32621E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.220E-02

Reduced Chi Squared = 0.914E-02

Chi Squared = 0.183E-01

The probability for exceeding chi square = 0.998E+00

The correlation coefficient = 0.996E+00

The probability that no LINEAR correlation exists between the variables = 0.41691

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

This is a 2 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	13	10:49:26	2.05 +/- 0.15	142.0 +/- 0.5	0.5	SMM	
1989	13	11:14:11	2.80 +/- 0.20	142.0 +/- 0.5	0.5	SMM	
1989	13	11:22:25	2.90 +/- 0.20	145.0 +/- 0.5	0.5	SMM	
1989	13	11:38:56	3.40 +/- 0.20	142.0 +/- 1.0	1.0	SMM	

Structure being measured:
Top of Loop(?)

OUTPUT:

START TIME:

Event began at t = 0 + -0.254E+02 +/- 0.475E+02 [minutes]
In more convenient units:
Event began at DOY 13 10:15 +/- 0.475E+02 [minutes]

Origin defined at DOY 13 10:40

RADIAL INFORMATION:

RADIAL ACCELERATION = -0.152E-01 +/- 0.389E-01 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.178E+01 +/- 0.860E-01 [solar radii]
c(2) = 0.296E-01 +/- 0.662E-02 [radii/min]
c(2) = 0.343E+03 +/- 0.768E+02 [km/sec]
c(3) = -0.392E-04 +/- 0.100E-03 [radii/min**2]
c(3) = -0.152E-01 +/- 0.389E-01 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.15117E+00 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.40629E-01 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.10157E-01 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.49496E-02 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.14795E-03 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.72994E-04 [radii/min**] Bevington pg 154 (8-28)

ANGULAR INFORMATION:

ANGULAR ACCELERATION = -0.1191E-07 +/- 0.3461E-07 [radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 141. +/- 3. [degrees]
a(2) = 0.114E+00 +/- 0.214E+00 [degrees/min]
a(2) = 0.332E-04 +/- 0.623E-04 [rad/sec]
a(3) = -0.123E-02 +/- 0.357E-02 [degrees/min**2]
a(3) = -0.119E-07 +/- 0.346E-07 [rad/sec**2]

THE TANGENTIAL, RADIAL AND TOTAL SPEEDS AT EACH DATA POINT ARE:

The TANGENTIAL velocity at 10:49 = 38. km /sec

The RADIAL velocity at 10:49 = 335. km/sec

The TOTAL velocity at 10:49 = 337. km/sec

The TANGENTIAL velocity at 11:14 = 17. km /sec

The RADIAL velocity at 11:14 = 312. km/sec

The TOTAL velocity at 11:14 = 313. km/sec

The TANGENTIAL velocity at 11:22 = 6. km /sec

The RADIAL velocity at 11:22 = 305. km/sec

The TOTAL velocity at 11:22 = 305. km/sec

The TANGENTIAL velocity at 11:38 = -21. km /sec

The RADIAL velocity at 11:38 = 290. km/sec

The TOTAL velocity at 11:38 = 290. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 0.56

Standard Deviation in start time measurement = 0.179E+02

Value of reduced Chi Squared returned from nllst2 = 0.306E-02

Reduced Chi Squared = 0.189E-01

Chi Squared = 0.189E-01

The probability for exceeding chi square = 0.956E+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 = 0.1094E+01

The correlation between the data and the time**2 term = 0.1014E+01

The correlation between the data and the complete equation of motion = 0.9943E+01

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