

1989 DOY 002

MKIII: 58 images

Event in west: 18:57 to ~20:13

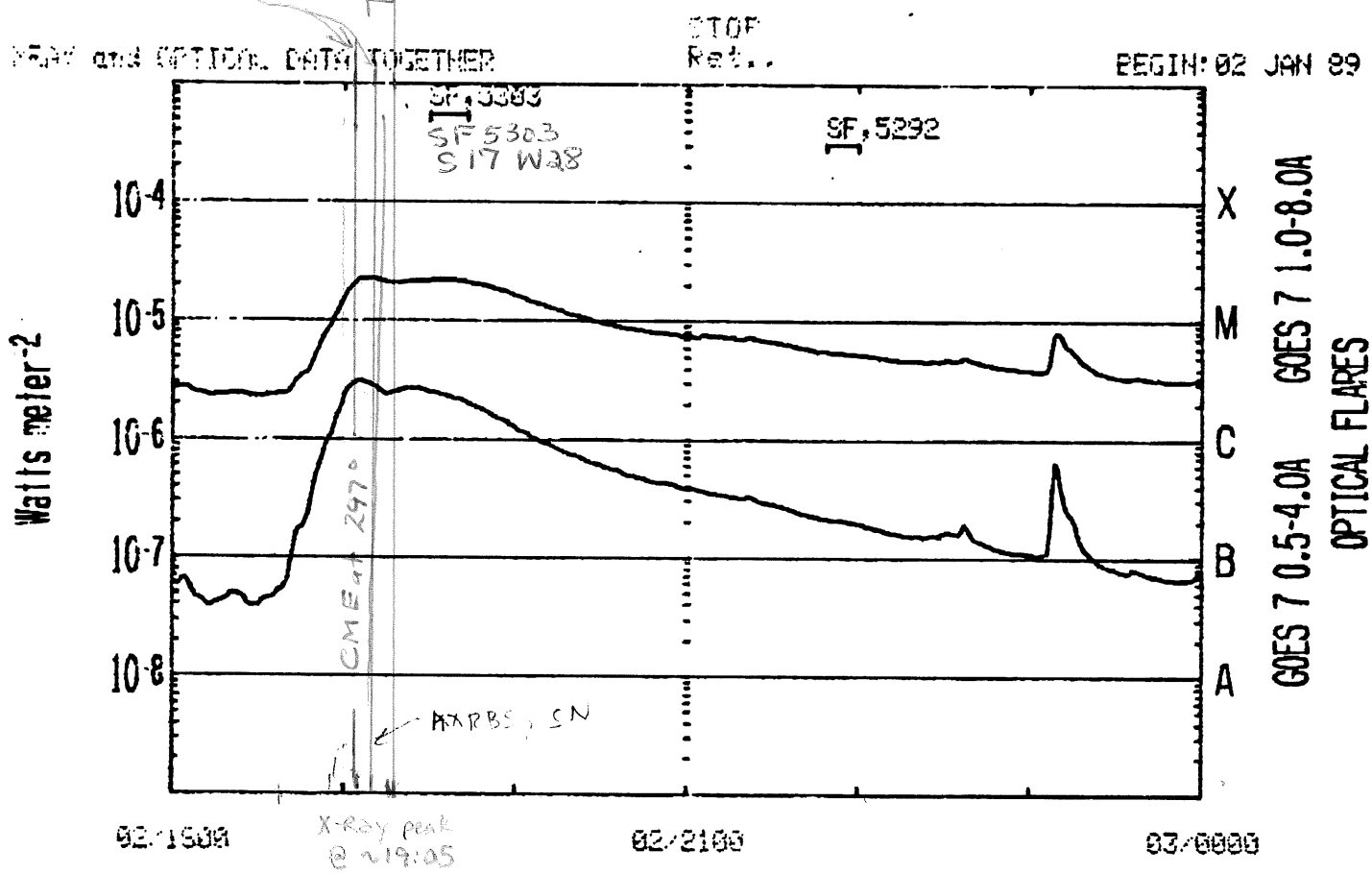
Loop with cavity and core.

Width of Outer Bright Loop: 69 degrees wide.

Center of Outer Bright Loop: 296 degrees pa.

PMON: Needs to be viewed on the grinnell

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



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

SAA's NIGHT
RUN: 1430UT
6 JAN 89

Top of Outer Loop, center=297°
[19:02] 2nd order] adding data point
[19:10] 1st order] @ 19:21

Top of Outer Loop, center=297°
[19:18] 1st order only

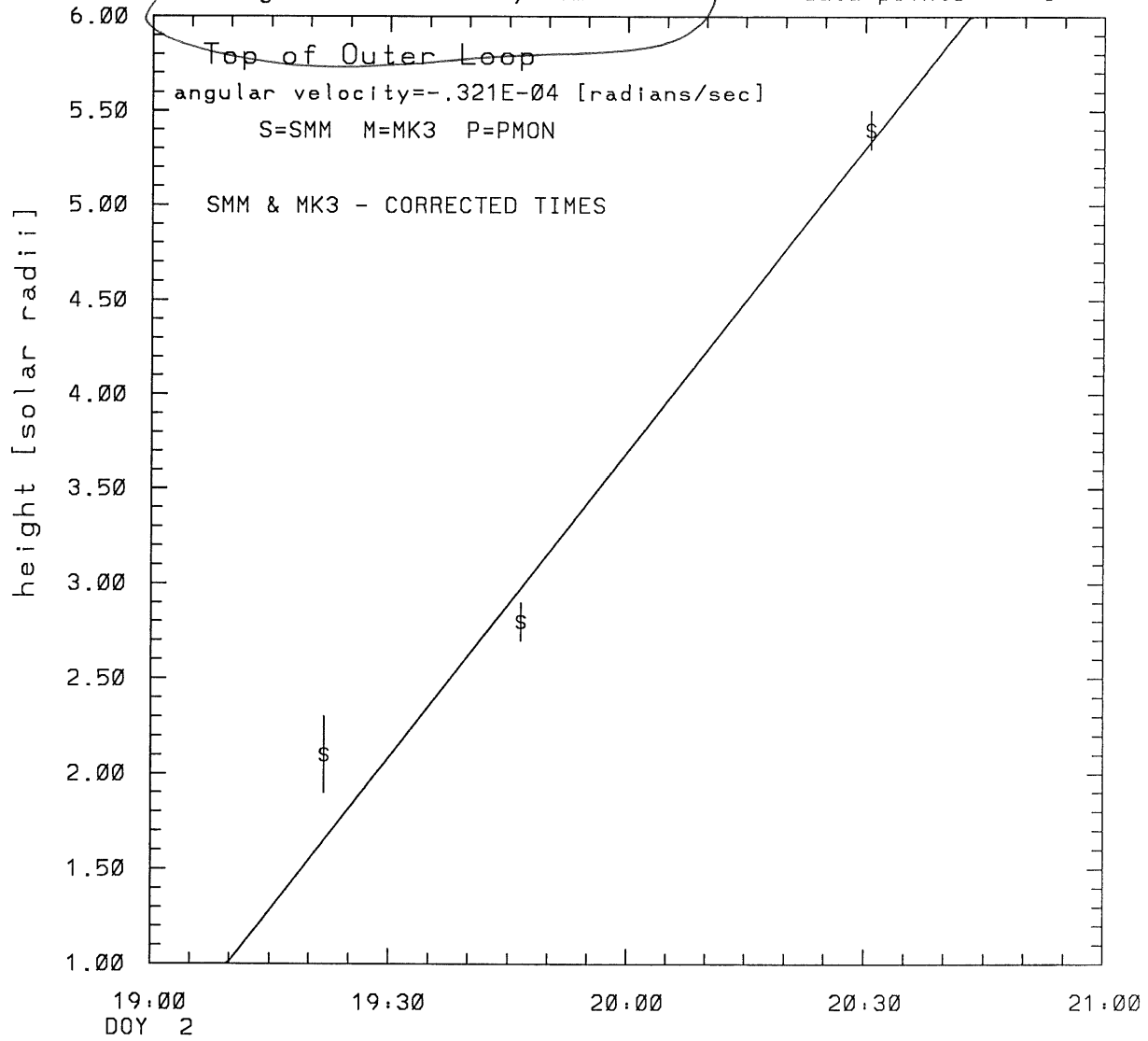
BEGIN: 02 JAN 89

ang

SMM C/P 1989 DOY 2 288 +/- 4 degrees

height = h + velocity*time

data points = 3



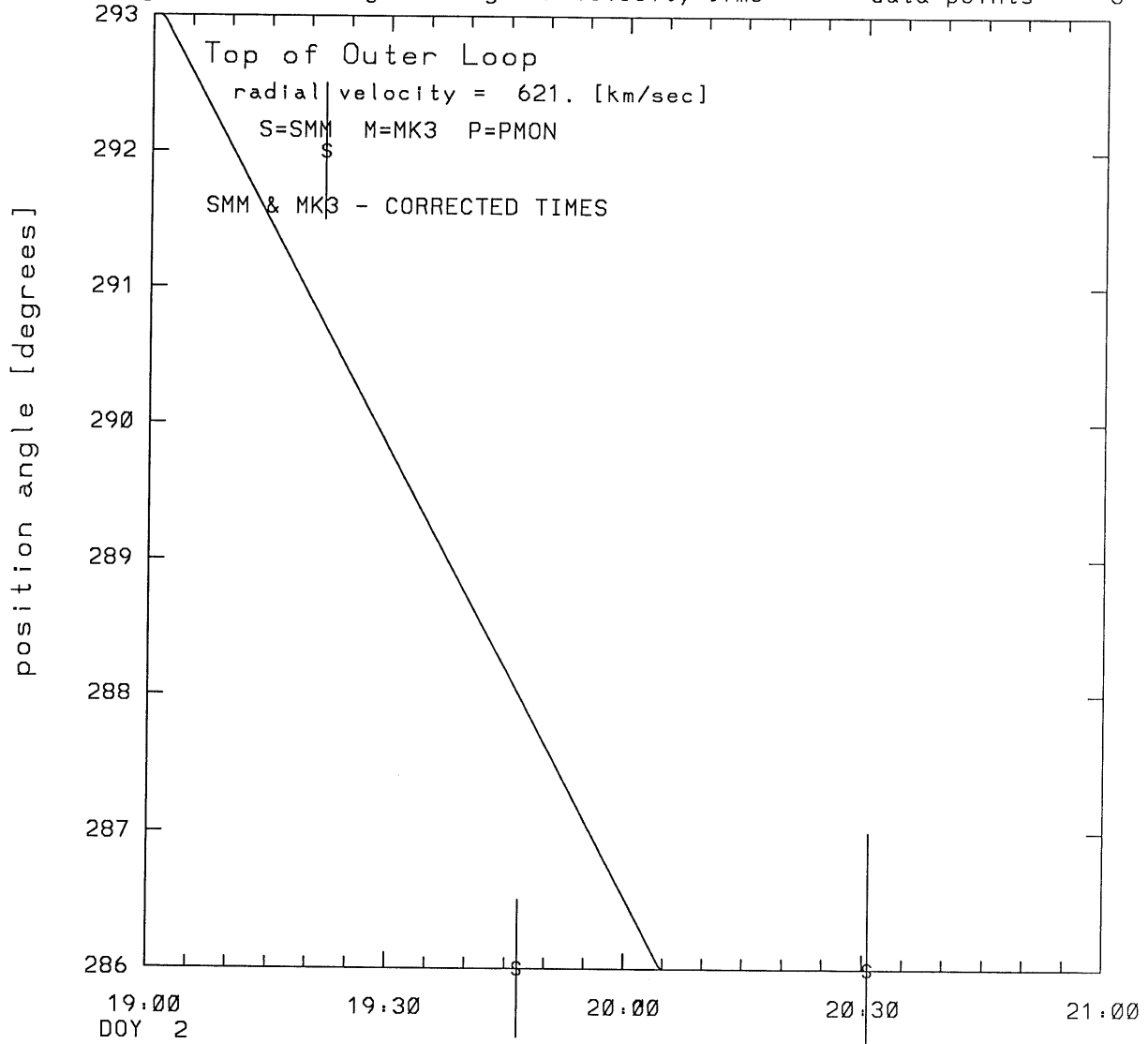
submitted by AJH

tstart=DOY 2 19:10 +/- 6.4 [min.]
radial velocity= 621. +/- 63. [km/sec]

Speed

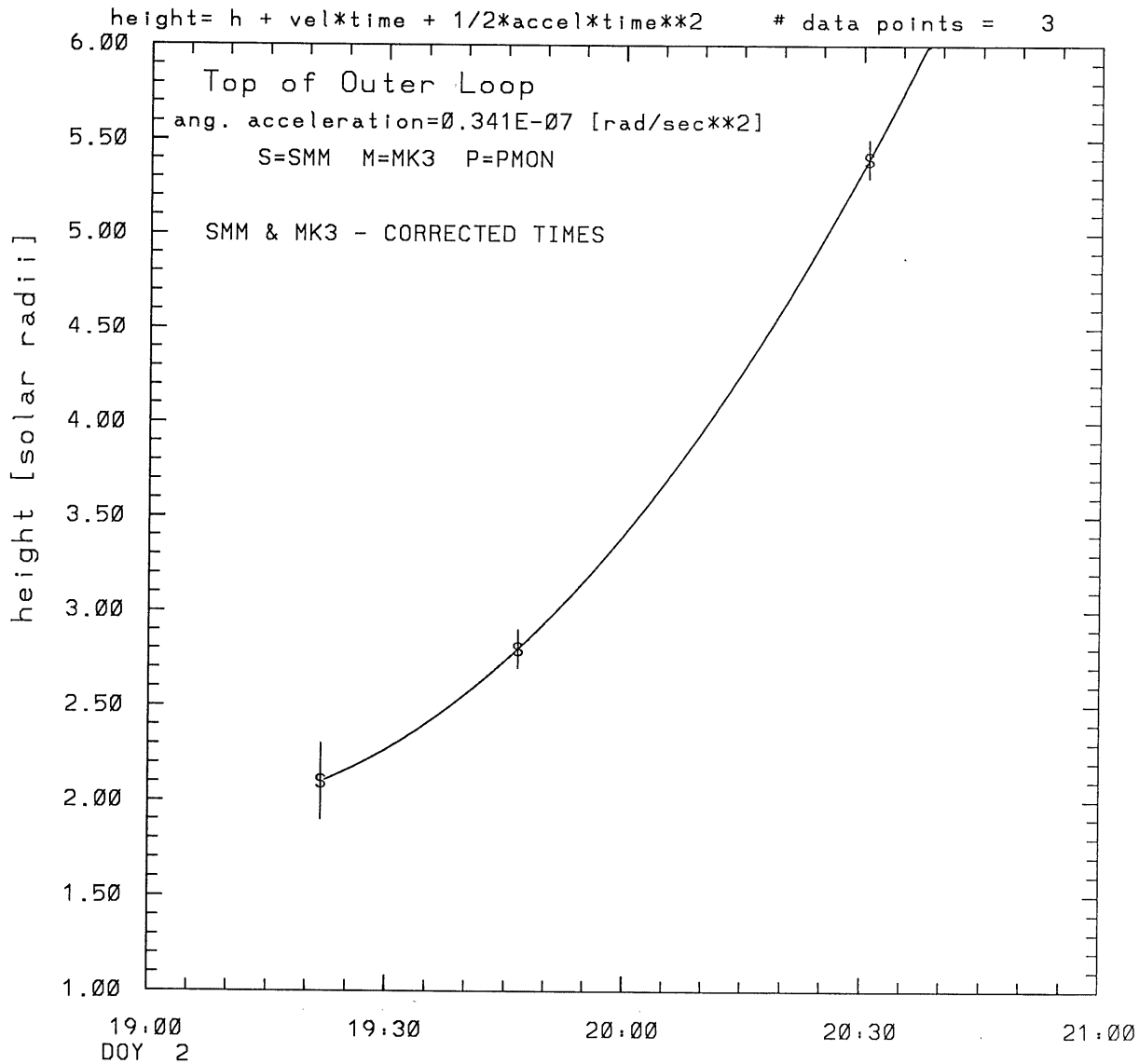
SMM C/P 1989 DOY 2 288 +/- 4 degrees

angle = initial angle + angular velocity * time # data points = 3



angular velocity = $-.321E-04 \pm 0.179E-04$ [rad/sec]

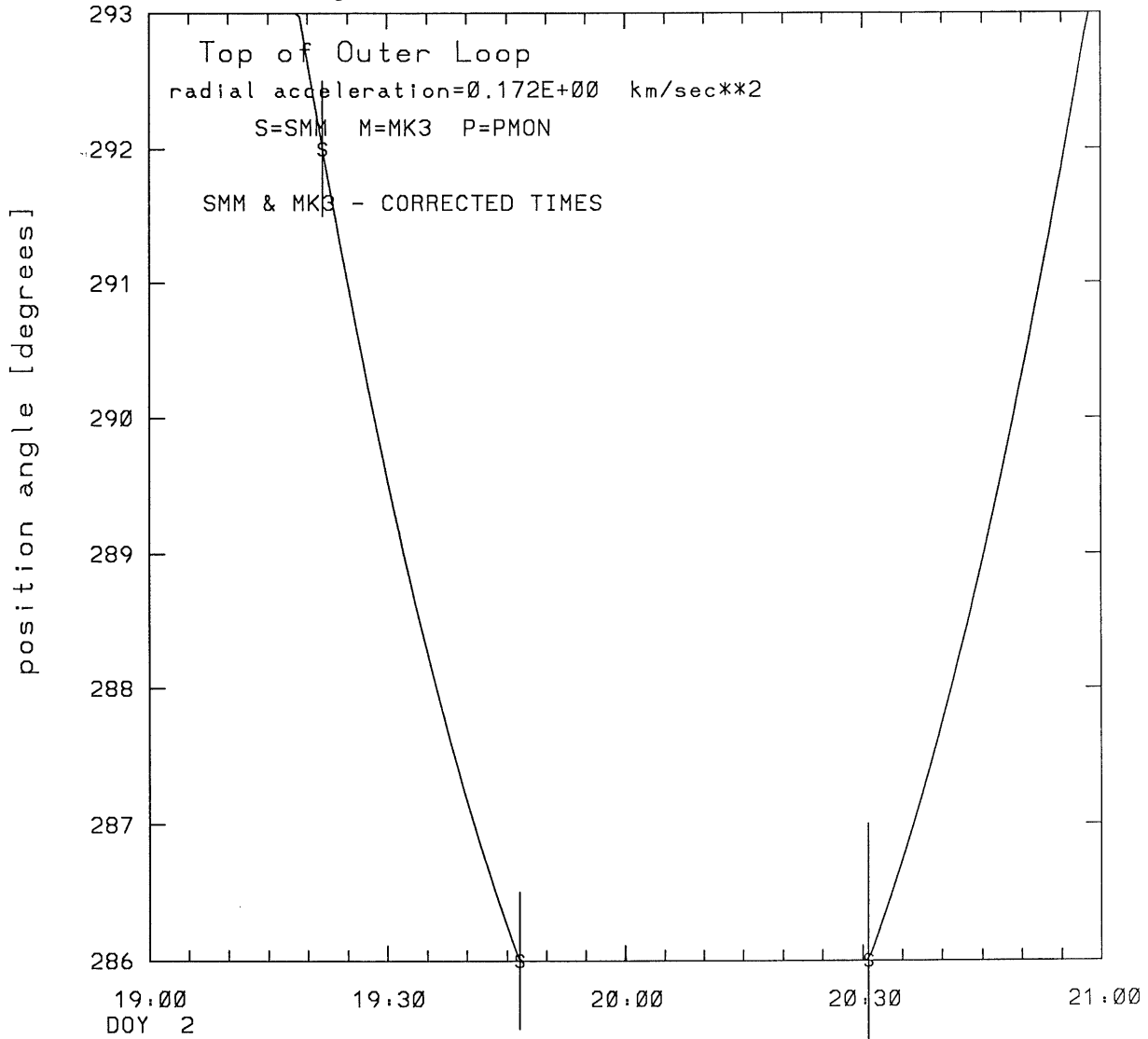
SMM C/P 1989 DOY 2 288 +/- 4 degrees



tstart=DOY 2 19: 2 from derivative=0
Event begins at 1.93 Solar Radii
radial acceleration = $0.1724 +/- 0.0000$ [km/sec**2]

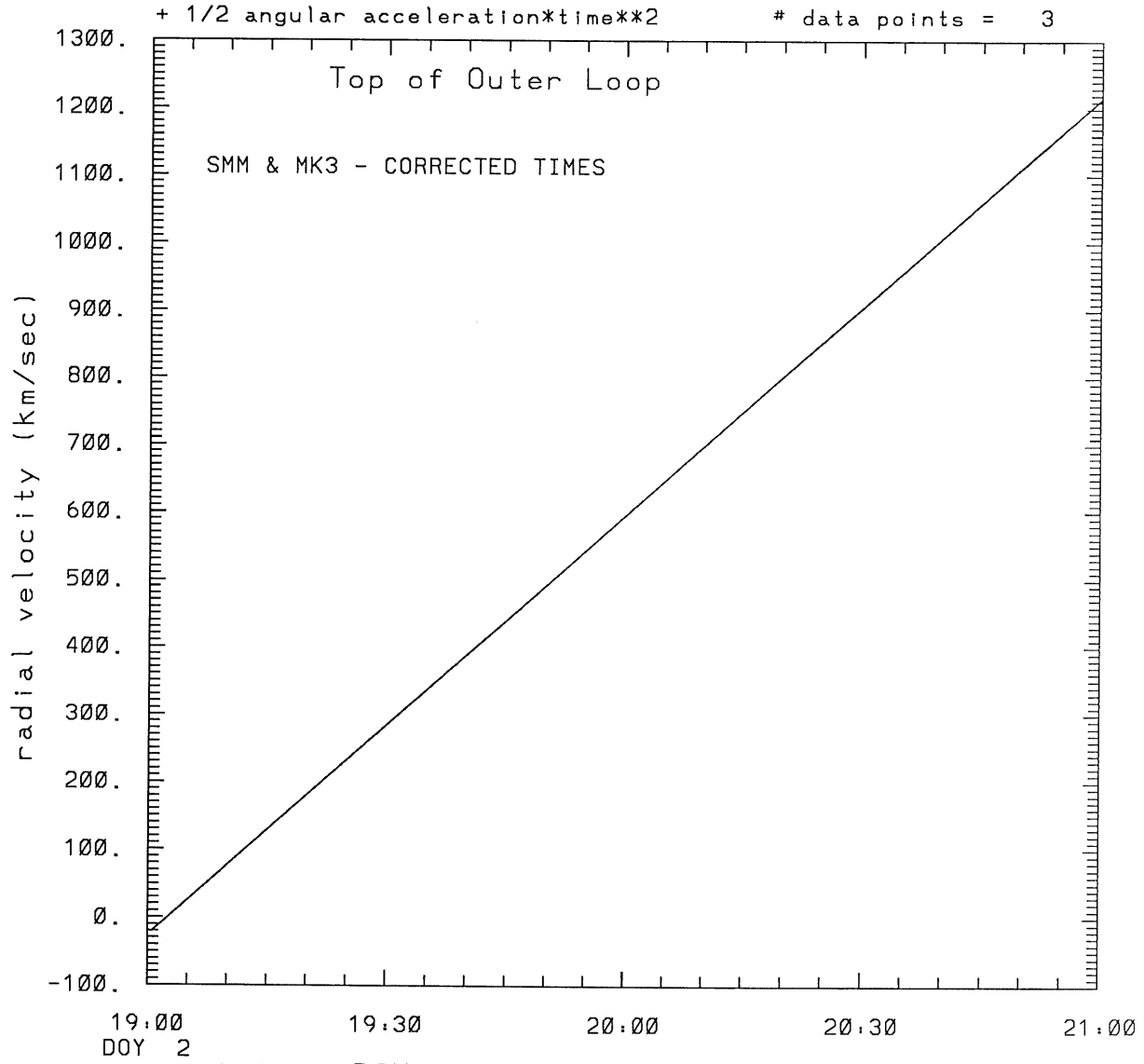
SMM C/P 1989 DOY 2 288 +/- 4 degrees

angle= initial angle + angular velocity*time
+ 1/2 angular acceleration*time**2 # data points = 3



Event begins at 1.93 Solar Radii
angular acceleration=0.341E-07 +/- 0.652E-12 [rad/sec**2]

SMM C/P 1989 DOY 2 288 +/- 4 degrees

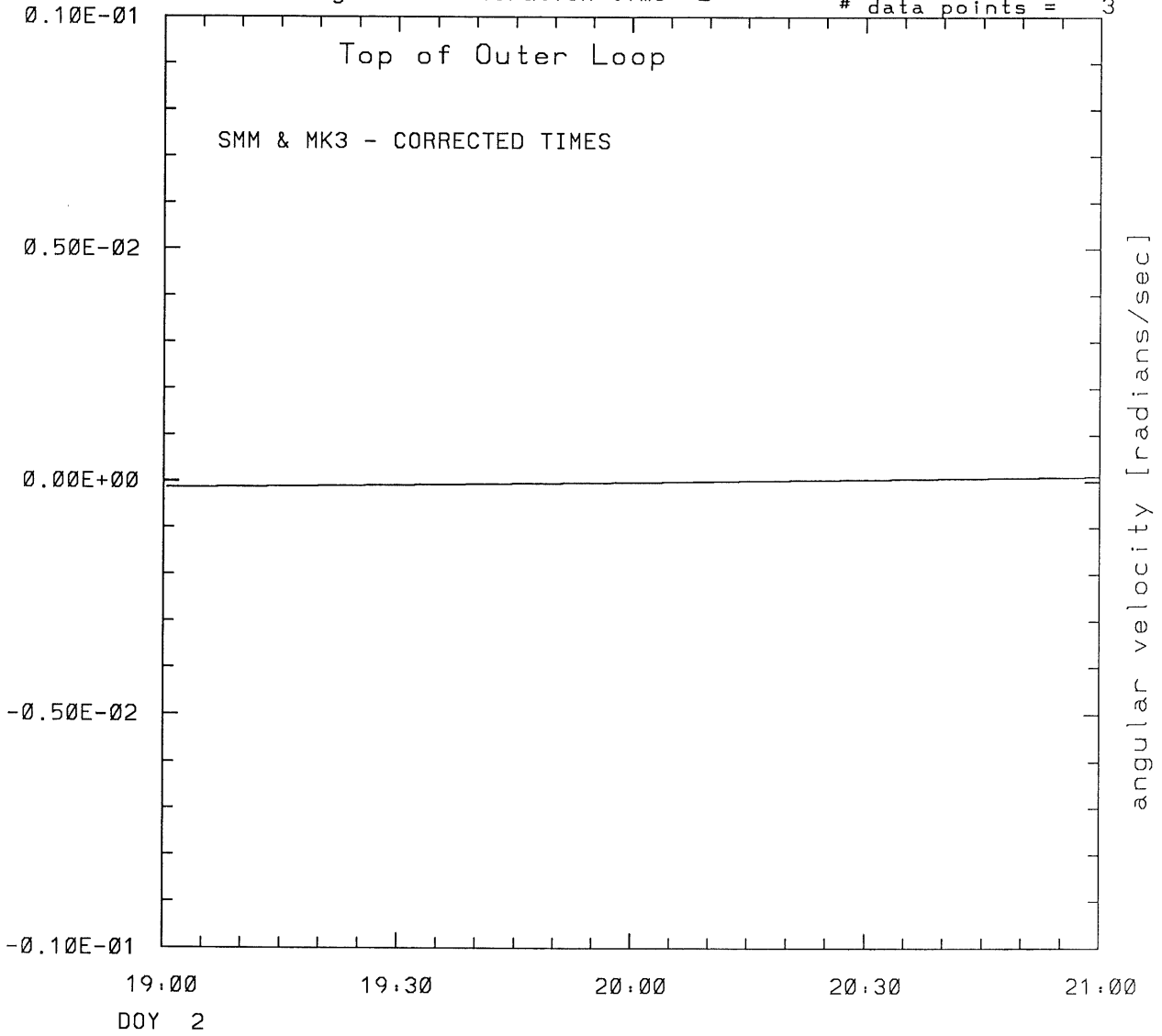


tstart=DOY 2 19: 2 from derivative=0
Event begins at 1.93 Solar Radii
radial acceleration=0.172E+00 km/sec**2

SMM C/P 1989 DOY 2 288 +/- 4 degrees

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

data points = 3



angular acceleration = $0.341E-07 \pm 0.652E-12$ [rad/sec**2]

This is a 1 order run

INPUT:

year	day	time	radii	radius	error in angle	error in angle	datatype
1989	2	19:21:52	2.10 +/- 0.20	292.0 +/- 0.5			SMM
1989	2	19:46:37	2.80 +/- 0.10	286.0 +/- 0.5			SMM
1989	2	20:30:42	5.40 +/- 0.10	286.0 +/- 1.0			SMM

Structure being measured:
Top of Outer Loop

OUTPUT:

START TIME:

Event began at $t = 0 + 0.973E+01 \pm 0.640E+01$ [minutes]
In more convenient units:
Event began at DOY 2 19:10 +/- 0.640E+01 [minutes]

Origin defined at DOY 2 19: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 621. +/- 63. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.479E+00 +/- 0.370E+00 [solar radii]
c(2) = 0.536E-01 +/- 0.541E-02 [radii/min]
c(2) = 0.621E+03 +/- 0.628E+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) = 0.59494E+00 [radii] see Bevington pg. 114
error in c(2) = 0.98802E-02 [radii/min] see Bevington pg. 114

ANGULAR INFORMATION:

ANGULAR VELOCITY = -0.3208E-04 +/- 0.1787E-04 [radians/sec]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 293. +/- 3. [degrees]
a(2) = -0.110E+00 +/- 0.614E-01 [degrees/min]
a(2) = -0.321E-04 +/- 0.179E-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 19:21 = -47. km/sec

The RADIAL velocity at 19:21 = 621. km/sec

The TOTAL velocity at 19:21 = 623. km/sec

The TANGENTIAL velocity at 19:46 = -62. km /sec

The RADIAL velocity at 19:46 = 621. km/sec

The TOTAL velocity at 19:46 = 624. km/sec

The TANGENTIAL velocity at 20:30 = -120. km /sec

The RADIAL velocity at 20:30 = 621. km/sec

The TOTAL velocity at 20:30 = 633. km/sec

The following info is for estimating goodness of the fit

Fit is ok [ier=1]

Standard Deviation in the height = 1.74

Standard Deviation in start time measurement = 0.285E+02

Error in time = 0.90956E+01 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.570E-01

Reduced Chi Squared = 0.276E+00

Chi Squared = 0.276E+00

The probability for exceeding chi square = 0.811E+00

The correlation coefficient = 0.987E+00

The probability that no LINEAR correlation exists between the variables = 0.10201

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	2	19:21:52	2.10 +/-	0.20	292.0 +/-	0.5	SMM
1989	2	19:46:37	2.80 +/-	0.10	286.0 +/-	0.5	SMM
1989	2	<u>20:30:42</u>	5.40 +/-	0.10	286.0 +/-	1.0	SMM

Structure being measured:
Top of Outer Loop

OUTPUT:

START TIME:

tstart=DOY 2 19: 2 from derivative = 0
Event begins at 1.93 Solar Radii
Origin defined at DOY 2 19: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.172E+00 +/- 0.122E-06 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.194E+01 +/- 0.109E-05 [solar radii]
c(2) = -0.226E-02 +/- 0.398E-07 [radii/min]
c(2) = -0.262E+02 +/- 0.462E-03 [km/sec]
c(3) = 0.446E-03 +/- 0.315E-09 [radii/min**2]
c(3) = 0.172E+00 +/- 0.122E-06 [km/sec**2]

ANGULAR INFORMATION:

ANGULAR ACCELERATION= 0.3415E-07 +/- 0.6521E-12[radians/sec**2]

The computed ANGULAR coefficients and errors FROM NLLST2 are:

a(1) = 301. +/- 0. [degrees]
a(2) = -0.484E+00 +/- 0.732E-05 [degrees/min]
a(2) = -0.141E-03 +/- 0.213E-08 [rad/sec]
a(3) = 0.352E-02 +/- 0.673E-07 [degrees/min**2]
a(3) = 0.341E-07 +/- 0.652E-12 [rad/sec**2]

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

The TANGENTIAL velocity at 19:21 = -140. km/sec
The RADIAL velocity at 19:21 = 200. km/sec

The TOTAL velocity at 19:21 = 244. km/sec

The TANGENTIAL velocity at 19:46 = -88. km/sec
The RADIAL velocity at 19:46 = 456. km/sec

The TOTAL velocity at 19:46 = 465. km/sec

The TANGENTIAL velocity at 20:30 = 169. km/sec

The RADIAL velocity at 20:30 = 912. km/sec

The TOTAL velocity at 20:30 = 928. 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!