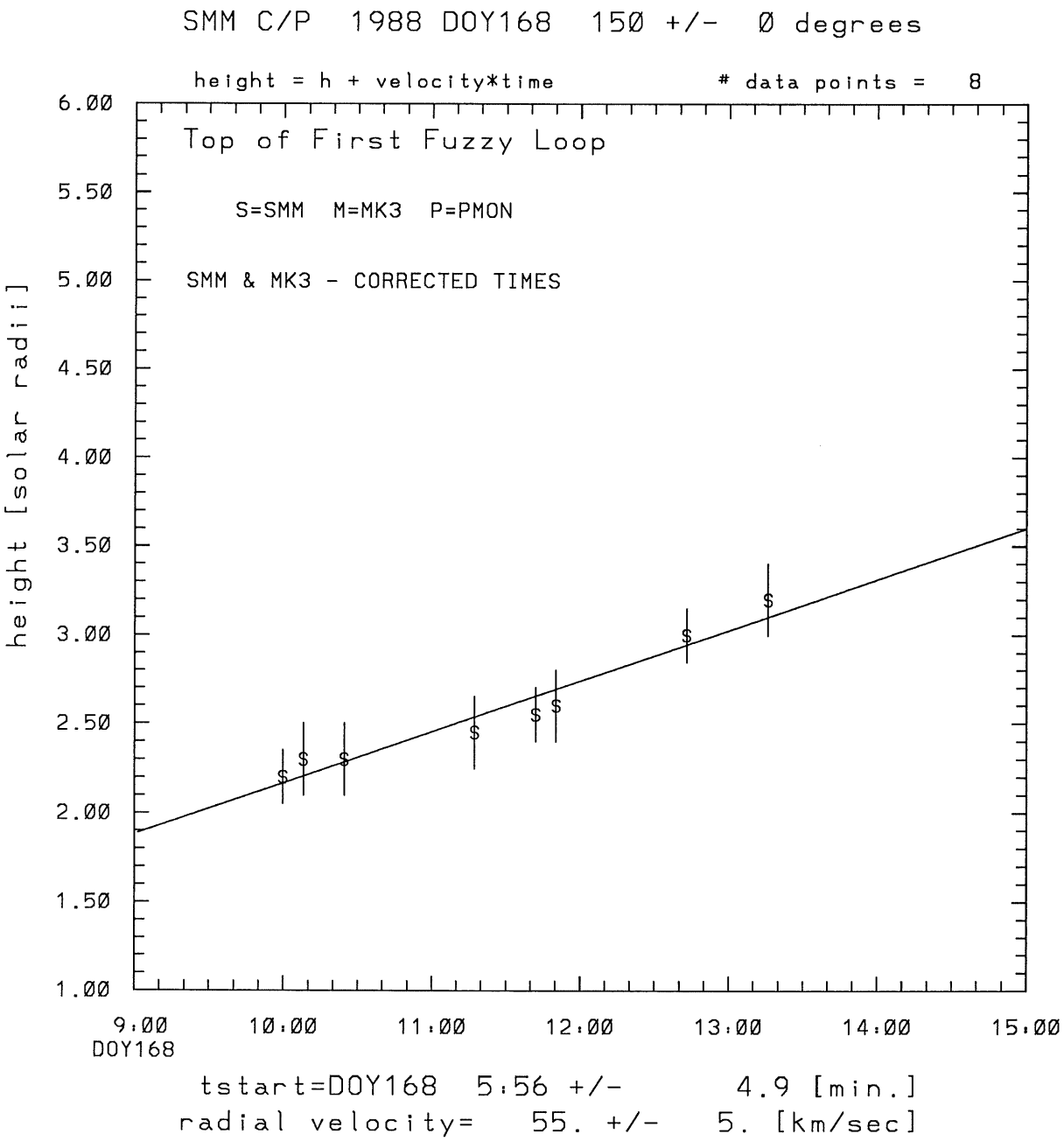
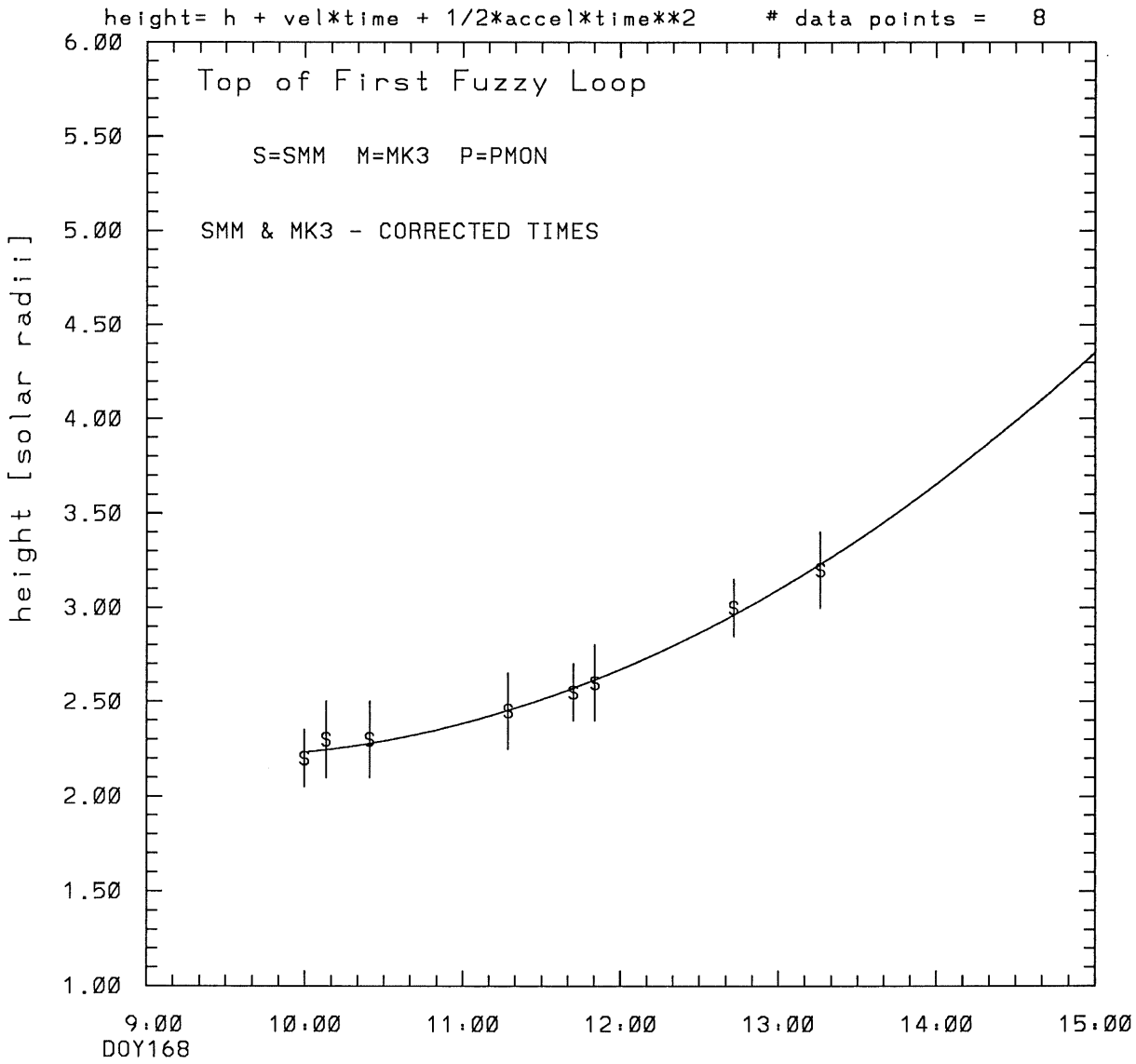


tstart=DOY168 5:56 +/- 4.9 [min.]

radial velocity= 55. +/- 5. [km/sec]

SMM C/P 1988 DOY168 150 +/- 0 degrees

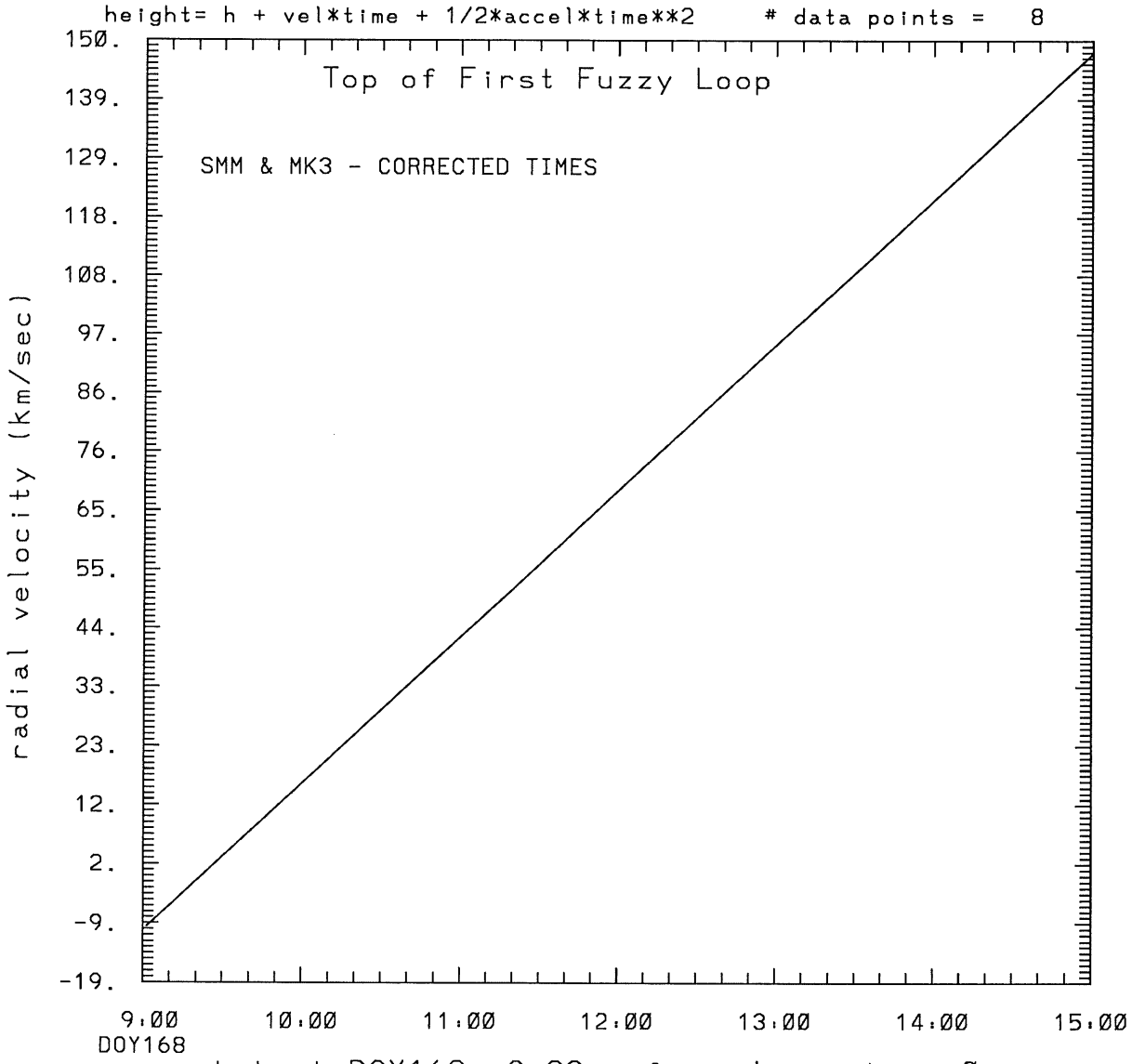


tstart=DOY168 9:23 from derivative=0

Event begins at 2.21 Solar Radii

radial acceleration= 0.0073 +/- 0.0013 [km/sec**2]

SMM C/P 1988 DOY168 150 +/- Ø degrees



tstart=DOY168 9:23 from derivative=Ø

Event begins at 2.21 Solar Radii

radial acceleration=Ø.731E-Ø2 km/sec**2

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1988	168	9:59:43	2.20	+/- 0.15	150.0	+/- 0.5	SMM
1988	168	10: 7:57	2.30	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	10:24:28	2.30	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	11:17:15	2.45	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	11:42: 3	2.55	+/- 0.15	150.0	+/- 0.5	SMM
1988	168	11:50:18	2.60	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	12:43: 0	3.00	+/- 0.15	150.0	+/- 1.0	SMM
1988	168	13:15:59	3.20	+/- 0.20	150.0	+/- 1.0	SMM

****
Structure being measured:
Top of First Fuzzy Loop
****

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.184E+03 +/- 0.489E+01 [minutes]
In more convenient units:
Event began at DOY 168 5:56 +/- 0.489E+01 [minutes]

Origin defined at DOY168 9: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 55. +/- 5. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.188E+01 +/- 0.696E-01 [solar radii]
c(2) = 0.477E-02 +/- 0.433E-03 [radii/min]
c(2) = 0.554E+02 +/- 0.503E+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)= 0.76619E-01 [radii] see Bevington pg. 114
error in c(2)= 0.47902E-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) = 150. +/- 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 9:59 = 0. km/sec
The TOTAL velocity at 9:59 = 55. km/sec

The TANGENTIAL velocity at 10: 7 = 0. km/sec
The TOTAL velocity at 10: 7 = 55. km/sec

The TANGENTIAL velocity at 10:24 = 0. km/sec
The TOTAL velocity at 10:24 = 55. km/sec

The TANGENTIAL velocity at 11:17 = 0. km/sec
The TOTAL velocity at 11:17 = 55. km/sec

The TANGENTIAL velocity at 11:42 = 0. km/sec
The TOTAL velocity at 11:42 = 55. km/sec

The TANGENTIAL velocity at 11:50 = 0. km/sec
The TOTAL velocity at 11:50 = 55. km/sec

The TANGENTIAL velocity at 12:43 = 0. km/sec
The TOTAL velocity at 12:43 = 55. km/sec

The TANGENTIAL velocity at 13:15 = 0. km/sec
The TOTAL velocity at 13:15 = 55. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.35
Standard Deviation in start time measurement = 0.673E+02
Error in time = 0.46798E+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 = 0.422E-01
Chi Squared = 0.253E+00
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.971E+00
The probability that no LINEAR correlation exists between the variables = 0.5819E-04
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
1988	168	9:59:43	2.20	+/- 0.15	150.0	+/- 0.5	SMM
1988	168	10: 7:57	2.30	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	10:24:28	2.30	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	11:17:15	2.45	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	11:42: 3	2.55	+/- 0.15	150.0	+/- 0.5	SMM
1988	168	11:50:18	2.60	+/- 0.20	150.0	+/- 0.5	SMM
1988	168	12:43: 0	3.00	+/- 0.15	150.0	+/- 1.0	SMM
1988	168	13:15:59	3.20	+/- 0.20	150.0	+/- 1.0	SMM

****
Structure being measured:
Top of First Fuzzy Loop
****

****
OUTPUT:
****

START TIME:

tstart=DOY168 9:23 from derivative = 0
Event begins at 2.21 Solar Radii
Origin defined at DOY168 9: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.731E-02 +/- 0.132E-02 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.222E+01 +/- 0.678E-01 [solar radii]
c(2) = -0.873E-03 +/- 0.104E-02 [radii/min]
c(2) = -0.101E+02 +/- 0.120E+02 [km/sec]
c(3) = 0.189E-04 +/- 0.341E-05 [radii/min**2]
c(3) = 0.731E-02 +/- 0.132E-02 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.75640E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.23859E-01 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.11282E-02 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.29353E-03 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.36313E-05 [radii/min**] Bevington pg 154 (8-30)

Exact error in c(3) = 0.91389E-06 [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) = 150. +/- 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 9:59 = 0. km/sec
The TOTAL velocity at 9:59 = 16. km/sec

The TANGENTIAL velocity at 10: 7 = 0. km/sec
The TOTAL velocity at 10: 7 = 20. km/sec

The TANGENTIAL velocity at 10:24 = 0. km/sec
The TOTAL velocity at 10:24 = 27. km/sec

The TANGENTIAL velocity at 11:17 = 0. km/sec
The TOTAL velocity at 11:17 = 50. km/sec

The TANGENTIAL velocity at 11:42 = 0. km/sec
The TOTAL velocity at 11:42 = 61. km/sec

The TANGENTIAL velocity at 11:50 = 0. km/sec
The TOTAL velocity at 11:50 = 65. km/sec

The TANGENTIAL velocity at 12:43 = 0. km/sec
The TOTAL velocity at 12:43 = 88. km/sec

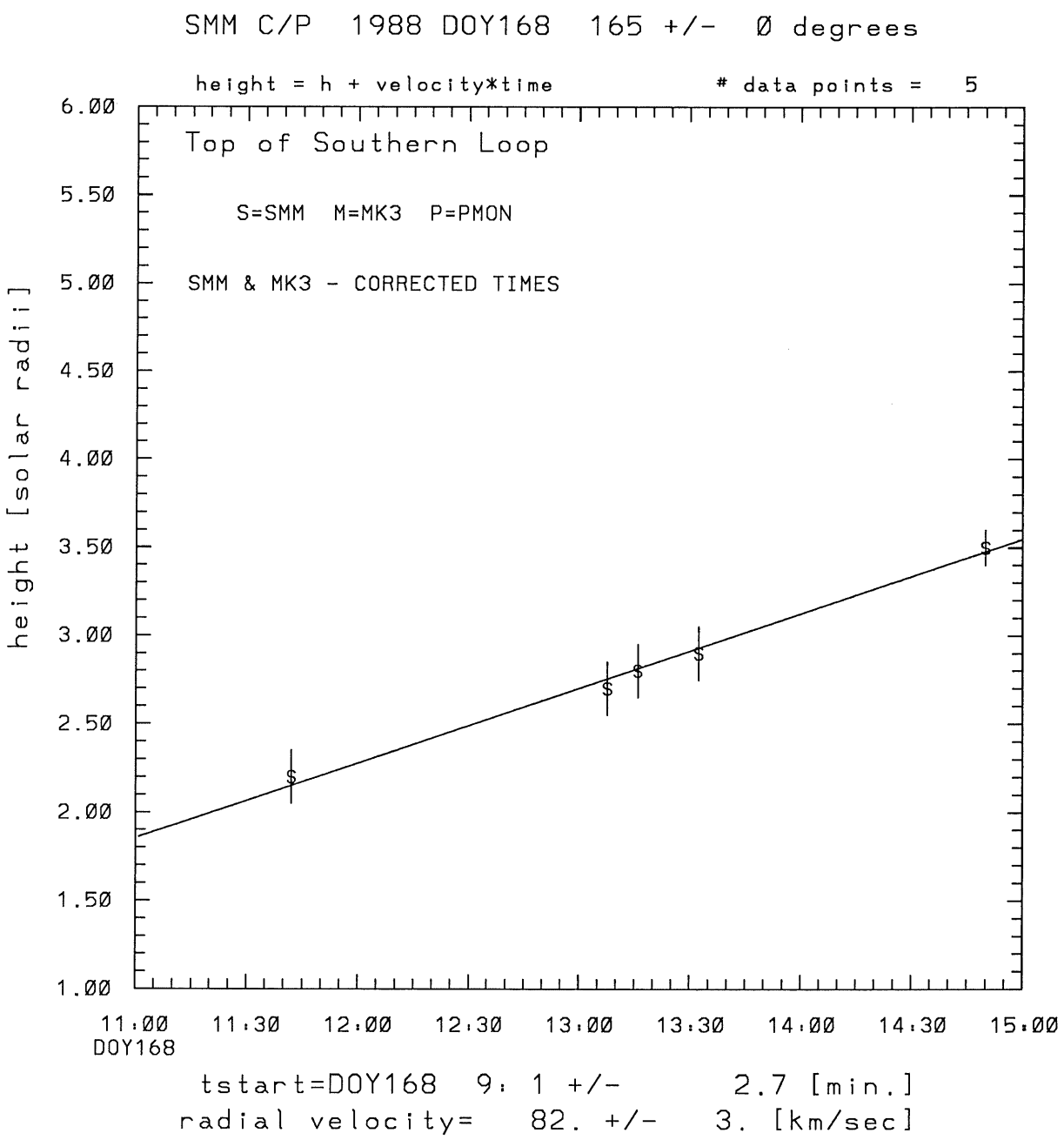
The TANGENTIAL velocity at 13:15 = 0. km/sec
The TOTAL velocity at 13:15 = 102. km/sec

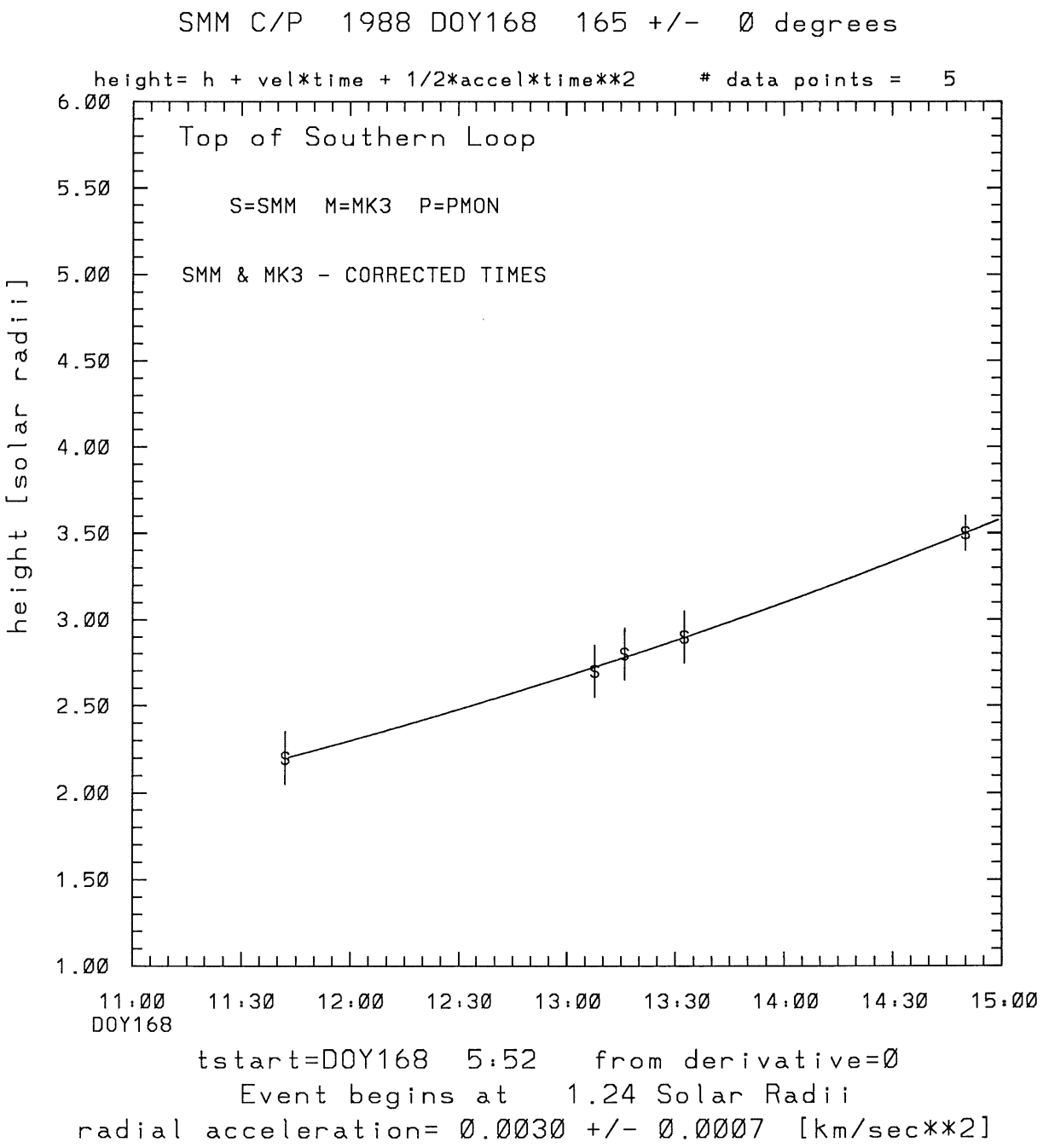
****
The following info is for estimating goodness of the fit
****

Fit is ok [ier=1]

Standard Deviation in the height = 0.35
Standard Deviation in start time measurement = 0.673E+02
Value of reduced Chi Squared returned from nllst2 = 0.130E-02
Reduced Chi Squared = 0.614E-02
Chi Squared = 0.307E-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 = 0.9727E+00
The correlation between the data and the time**2 term = 0.9738E+00
0The correlation between the data and the complete equation of motion = 0.9911E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]


SMM C/P 1988 DOY168 165 +/- Ø degrees
height = h + velocity*time
# data points = 5
Top of Southern Loop
S=SMM M=MK3 P=PMON
SMM & MK3 - CORRECTED TIMES
height [solar radii]
6.00
5.50
5.00
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
11:00
DOY168
11:30
12:00
12:30
13:00
13:30
14:00
14:30
15:00
tstart=DOY168 9: 1 +/- 2.7 [min.]
radial velocity= 82. +/- 3. [km/sec]

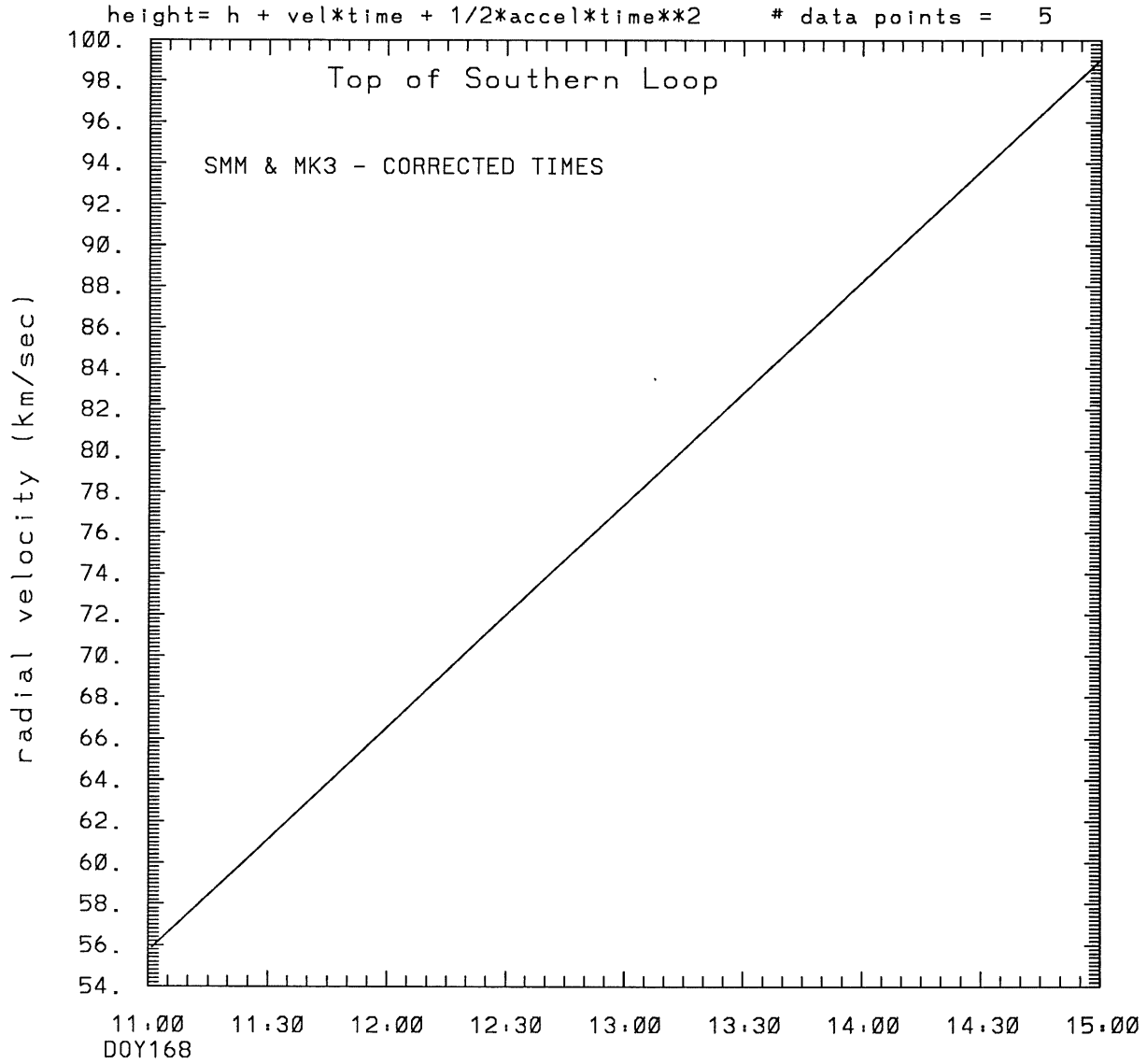


tstart=DOY168 5:52 from derivative=Ø

Event begins at 1.24 Solar Radii

radial acceleration= Ø.ØØ3Ø +/- Ø.ØØØ7 [km/sec**2]

SMM C/P 1988 DOY168 165 +/- Ø degrees



tstart=DOY168 5:52 from derivative=Ø

Event begins at 1.24 Solar Radii

radial acceleration=Ø.3Ø1E-Ø2 km/sec**2

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

****
INPUT:
****

year	doy	time	radii	error in radius	angle	error in angle	datatype
1988	168	11:42: 3	2.20	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	13: 7:46	2.70	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	13:15:59	2.80	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	13:32:30	2.90	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	14:50: 8	3.50	+/- 0.10	165.0	+/- 1.0	SMM

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

****
OUTPUT:
****

START TIME:

Event began at t = 0 + -0.121E+03 +/- 0.266E+01 [minutes]
In more convenient units:
Event began at DOY 168 9: 1 +/- 0.266E+01 [minutes]

Origin defined at DOY168 11: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 82. +/- 3. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.185E+01 +/- 0.456E-01 [solar radii]
c(2) = 0.706E-02 +/- 0.269E-03 [radii/min]
c(2) = 0.819E+02 +/- 0.312E+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)= 0.54421E-01 [radii] see Bevington pg. 114
error in c(2)= 0.36232E-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) = 165. +/- 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 11:42 = 0. km/sec
The TOTAL velocity at 11:42 = 82. km/sec

The TANGENTIAL velocity at 13: 7 = 0. km/sec
The TOTAL velocity at 13: 7 = 82. km/sec

The TANGENTIAL velocity at 13:15 = 0. km/sec
The TOTAL velocity at 13:15 = 82. km/sec

The TANGENTIAL velocity at 13:32 = 0. km/sec
The TOTAL velocity at 13:32 = 82. km/sec

The TANGENTIAL velocity at 14:50 = 0. km/sec
The TOTAL velocity at 14:50 = 82. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.47
Standard Deviation in start time measurement = 0.600E+02
Error in time = 0.11935E+02 using best fit method
See Taylor Error Analysis [Univ of Colorado] pg.78

Value of reduced Chi Squared returned from nllst2 = 0.154E-02
Reduced Chi Squared = 0.507E-02
Chi Squared = 0.152E-01
The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.996E+00
The probability that no LINEAR correlation exists between the variables = 0.2806E-03
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
1988	168	11:42: 3	2.20	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	13: 7:46	2.70	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	13:15:59	2.80	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	13:32:30	2.90	+/- 0.15	165.0	+/- 0.5	SMM
1988	168	14:50: 8	3.50	+/- 0.10	165.0	+/- 1.0	SMM

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

****
OUTPUT:
****

START TIME:

tstart=DOY168 5:52 from derivative = 0
Event begins at 1.24 Solar Radii
Origin defined at DOY168 11: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.301E-02 +/- 0.662E-03 km/sec**2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.198E+01 +/- 0.340E-01 [solar radii]
c(2) = 0.480E-02 +/- 0.508E-03 [radii/min]
c(2) = 0.557E+02 +/- 0.589E+01 [km/sec]
c(3) = 0.779E-05 +/- 0.171E-05 [radii/min**2]
c(3) = 0.301E-02 +/- 0.662E-03 [km/sec**2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.42022E-01 [radii] Bevington pg 154 (8-30)
Exact error in c(1) = 0.32383E-02 [radii] Bevington pg 154 (8-28)
Approximate error in c(2) = 0.64637E-03 [radii/min] Bevington pg 154 (8-30)
Exact error in c(2) = 0.80310E-04 [radii/min] Bevington pg 154 (8-28)
Approximate error in c(3) = 0.23083E-05 [radii/min**] Bevington pg 154 (8-30)
Exact error in c(3) = 0.29198E-06 [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) = 165. +/- 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 11:42 = 0. km/sec
The TOTAL velocity at 11:42 = 63. km/sec

The TANGENTIAL velocity at 13: 7 = 0. km/sec
The TOTAL velocity at 13: 7 = 79. km/sec

The TANGENTIAL velocity at 13:15 = 0. km/sec
The TOTAL velocity at 13:15 = 80. km/sec

The TANGENTIAL velocity at 13:32 = 0. km/sec
The TOTAL velocity at 13:32 = 83. km/sec

The TANGENTIAL velocity at 14:50 = 0. km/sec
The TOTAL velocity at 14:50 = 97. km/sec

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

Fit is ok [ier=1]

Standard Deviation in the height = 0.47
Standard Deviation in start time measurement = 0.600E+02
Value of reduced Chi Squared returned from nllst2 = 0.260E-03
Reduced Chi Squared = 0.119E-02
Chi Squared = 0.237E-02
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 = 0.1126E+01
The correlation between the data and the time**2 term = 0.1193E+01
0The correlation between the data and the complete equation of motion = 0.9994E+00
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]