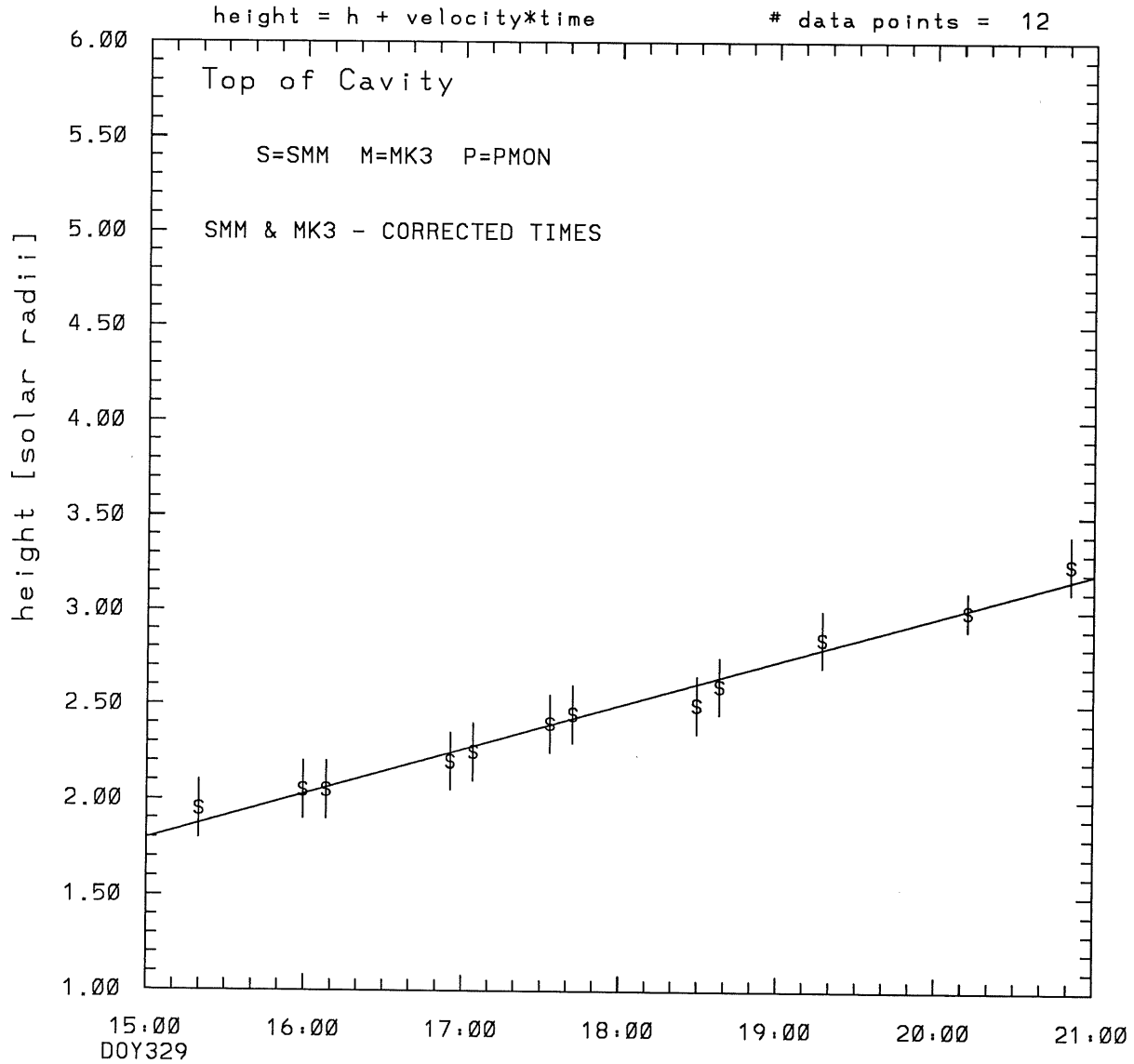
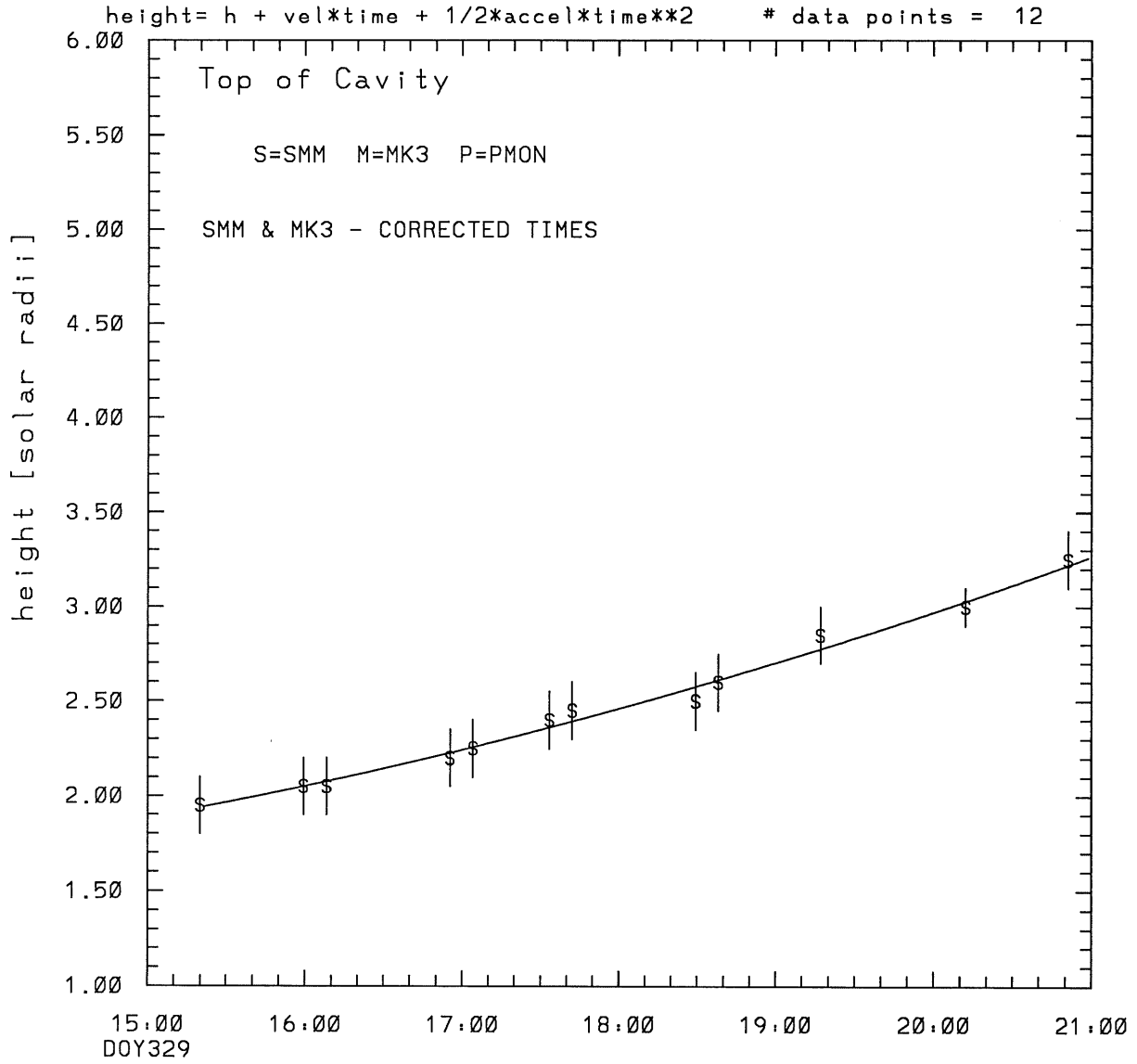


SMM C/P 1984 DOY329 292 +/- 0 degrees



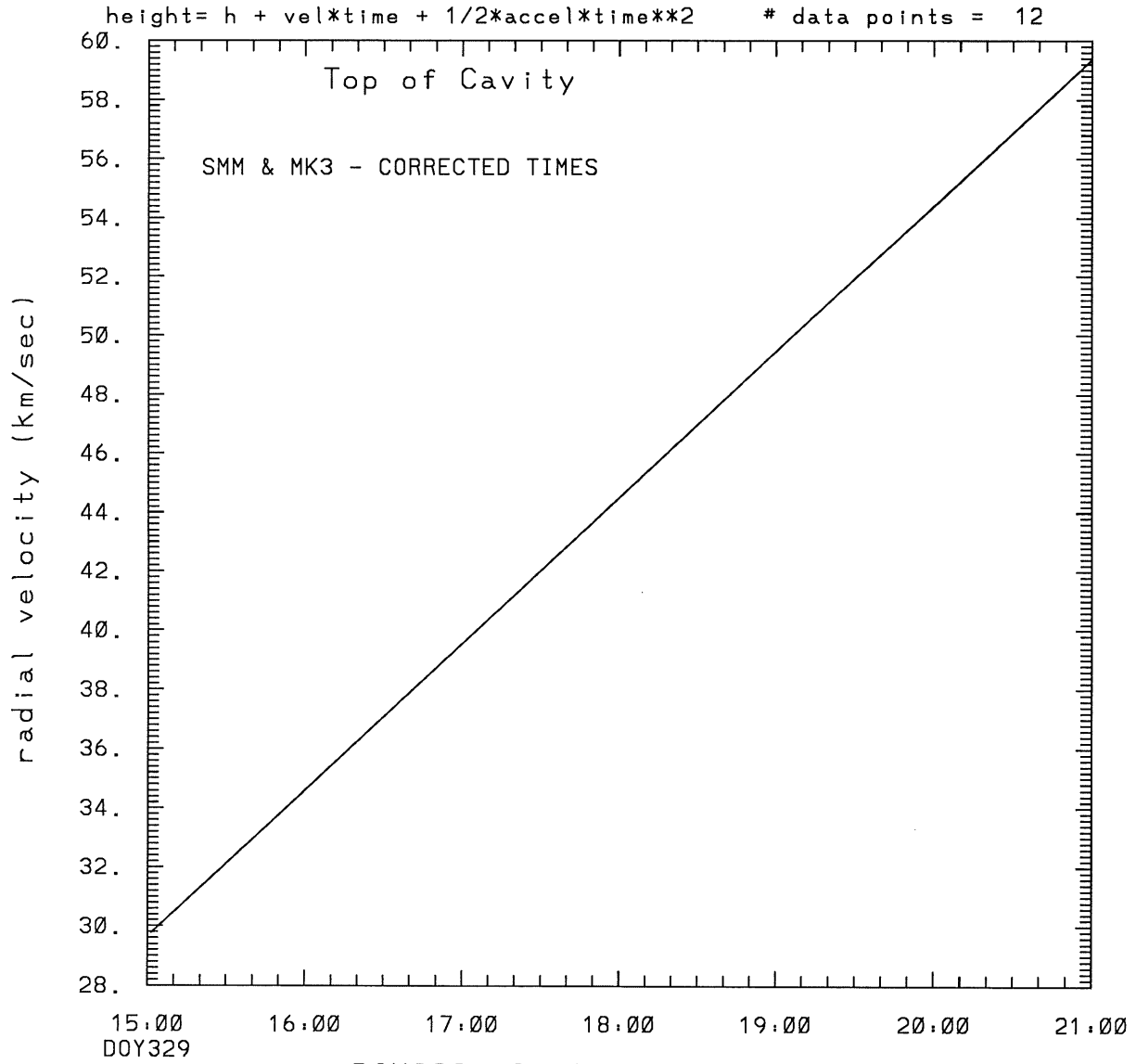
tstart=DOY329 11.38 +/- 1.1 [min.]  
radial velocity= 45. +/- 2. [km/sec]

SMM C/P 1984 DOY329 292 +/- 0 degrees



tstart=DOY329 9: 1 from derivative=0  
Event begins at 1.43 Solar Radii  
radial acceleration = 0.0014 +/- 0.0005 [km/sec\*\*2]

SMM C/P 1984 DOY329 292 +/- 0 degrees



tstart=DOY329 9: 1 from derivative=0  
Event begins at 1.43 Solar Radii  
radial acceleration=0.138E-02 km/sec\*\*2

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

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	day	time	radii	error in radius	angle	error in angle	datatype
1984	329	15:19:56	1.95	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	15:59:25	2.05	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	16: 8:10	2.05	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	16:55:25	2.20	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17: 4: 9	2.25	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:33:26	2.40	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:42:10	2.45	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	18:29:25	2.50	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	18:38:10	2.60	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	19:17: 9	2.85	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	20:12: 8	3.00	+/- 0.10	292.0	+/- 1.0	SMM
1984	329	20:51:10	3.25	+/- 0.15	292.0	+/- 1.0	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Cavity  
\*\*\*\*\*

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.204E+03 +/- 0.108E+01$  [minutes]  
In more convenient units:  
Event began at DOY 329 11:38 +/- 0.108E+01 [minutes]

Origin defined at DOY329 15: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 45. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

- $c(1) = 0.179E+01 +/- 0.320E-01$  [solar radii]
- $c(2) = 0.390E-02 +/- 0.152E-03$  [radii/min]
- $c(2) = 0.452E+02 +/- 0.176E+01$  [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)= 0.34273E-01 [radii] see Bevington pg. 114  
error in c(2)= 0.17402E-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) = 292. +/- 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 15:19 = 0.000E+00 km/sec

The TOTAL velocity at 15:19 = 45. km/sec

The TANGENTIAL velocity at 15:59 = 0.000E+00 km/sec

The TOTAL velocity at 15:59 = 45. km/sec

The TANGENTIAL velocity at 16: 8 = 0.000E+00 km/sec

The TOTAL velocity at 16: 8 = 45. km/sec

The TANGENTIAL velocity at 16:55 = 0.000E+00 km/sec

The TOTAL velocity at 16:55 = 45. km/sec

The TANGENTIAL velocity at 17: 4 = 0.000E+00 km/sec

The TOTAL velocity at 17: 4 = 45. km/sec

The TANGENTIAL velocity at 17:33 = 0.000E+00 km/sec

The TOTAL velocity at 17:33 = 45. km/sec

The TANGENTIAL velocity at 17:42 = 0.000E+00 km/sec

The TOTAL velocity at 17:42 = 45. km/sec

The TANGENTIAL velocity at 18:29 = 0.000E+00 km/sec

The TOTAL velocity at 18:29 = 45. km/sec

The TANGENTIAL velocity at 18:38 = 0.000E+00 km/sec

The TOTAL velocity at 18:38 = 45. km/sec

The TANGENTIAL velocity at 19:17 = 0.000E+00 km/sec

The TOTAL velocity at 19:17 = 45. km/sec

The TANGENTIAL velocity at 20:12 = 0.000E+00 km/sec

The TOTAL velocity at 20:12 = 45. km/sec

The TANGENTIAL velocity at 20:51 = 0.000E+00 km/sec

The TOTAL velocity at 20:51 = 45. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.40

Standard Deviation in start time measurement = 0.979E+02

Error in time = 0.47856E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.288E-02

Reduced Chi Squared = 0.259E-01

Chi Squared = 0.259E+00

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.990E+00

The probability that no LINEAR correlation exists between the variables = -0.1098E-07

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

\*\*\*\*\*  
This is a 2 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	doy	time	radii	error in radius	error in angle	angle	datatype
1984	329	15:19:56	1.95	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	15:59:25	2.05	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	16: 8:10	2.05	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	16:55:25	2.20	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17: 4: 9	2.25	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:33:26	2.40	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:42:10	2.45	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	18:29:25	2.50	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	18:38:10	2.60	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	19:17: 9	2.85	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	20:12: 8	3.00	+/- 0.10	292.0	+/- 1.0	SMM
1984	329	20:51:10	3.25	+/- 0.15	292.0	+/- 1.0	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Cavity  
\*\*\*\*\*

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

tstart=DOY329 9: 1 from derivative = 0  
Event begins at 1.43 Solar Radii  
Origin defined at DOY329 15: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.138E-02 +/- 0.513E-03 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

- c(1) = 0.188E+01 +/- 0.422E-01 [solar radii]
- c(2) = 0.256E-02 +/- 0.516E-03 [radii/min]
- c(2) = 0.297E+02 +/- 0.598E+01 [km/sec]
- c(3) = 0.356E-05 +/- 0.133E-05 [radii/min\*\*2]
- c(3) = 0.138E-02 +/- 0.513E-03 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.43318E-01 [radii] Bevington pg 154 (8-30)

Exact error in c(1) = 0.27173E-02 [radii] Bevington pg 154 (8-28)  
Approximate error in c(2) = 0.53088E-03 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.55134E-04 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.13849E-05 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.17804E-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) = 292. +/- 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 15:19 = 0.000E+00 km/sec  
The TOTAL velocity at 15:19 = 31. km/sec

The TANGENTIAL velocity at 15:59 = 0.000E+00 km/sec  
The TOTAL velocity at 15:59 = 35. km/sec

The TANGENTIAL velocity at 16: 8 = 0.000E+00 km/sec  
The TOTAL velocity at 16: 8 = 35. km/sec

The TANGENTIAL velocity at 16:55 = 0.000E+00 km/sec  
The TOTAL velocity at 16:55 = 39. km/sec

The TANGENTIAL velocity at 17: 4 = 0.000E+00 km/sec  
The TOTAL velocity at 17: 4 = 40. km/sec

The TANGENTIAL velocity at 17:33 = 0.000E+00 km/sec  
The TOTAL velocity at 17:33 = 42. km/sec

The TANGENTIAL velocity at 17:42 = 0.000E+00 km/sec  
The TOTAL velocity at 17:42 = 43. km/sec

The TANGENTIAL velocity at 18:29 = 0.000E+00 km/sec  
The TOTAL velocity at 18:29 = 47. km/sec

The TANGENTIAL velocity at 18:38 = 0.000E+00 km/sec  
The TOTAL velocity at 18:38 = 48. km/sec

The TANGENTIAL velocity at 19:17 = 0.000E+00 km/sec  
The TOTAL velocity at 19:17 = 51. km/sec

The TANGENTIAL velocity at 20:12 = 0.000E+00 km/sec  
The TOTAL velocity at 20:12 = 55. km/sec



The TANGENTIAL velocity at 20:51 = 0.000E+00 km/sec  
The TOTAL velocity at 20:51 = 59. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.40

Standard Deviation in start time measurement = 0.979E+02

Value of reduced Chi Squared returned from nllst2 = 0.185E-02

Reduced Chi Squared = 0.175E-01

Chi Squared = 0.157E+00

The probability for exceeding chi square = 0.100E+01

For a second order fit 3 correlation coefficients are given:

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

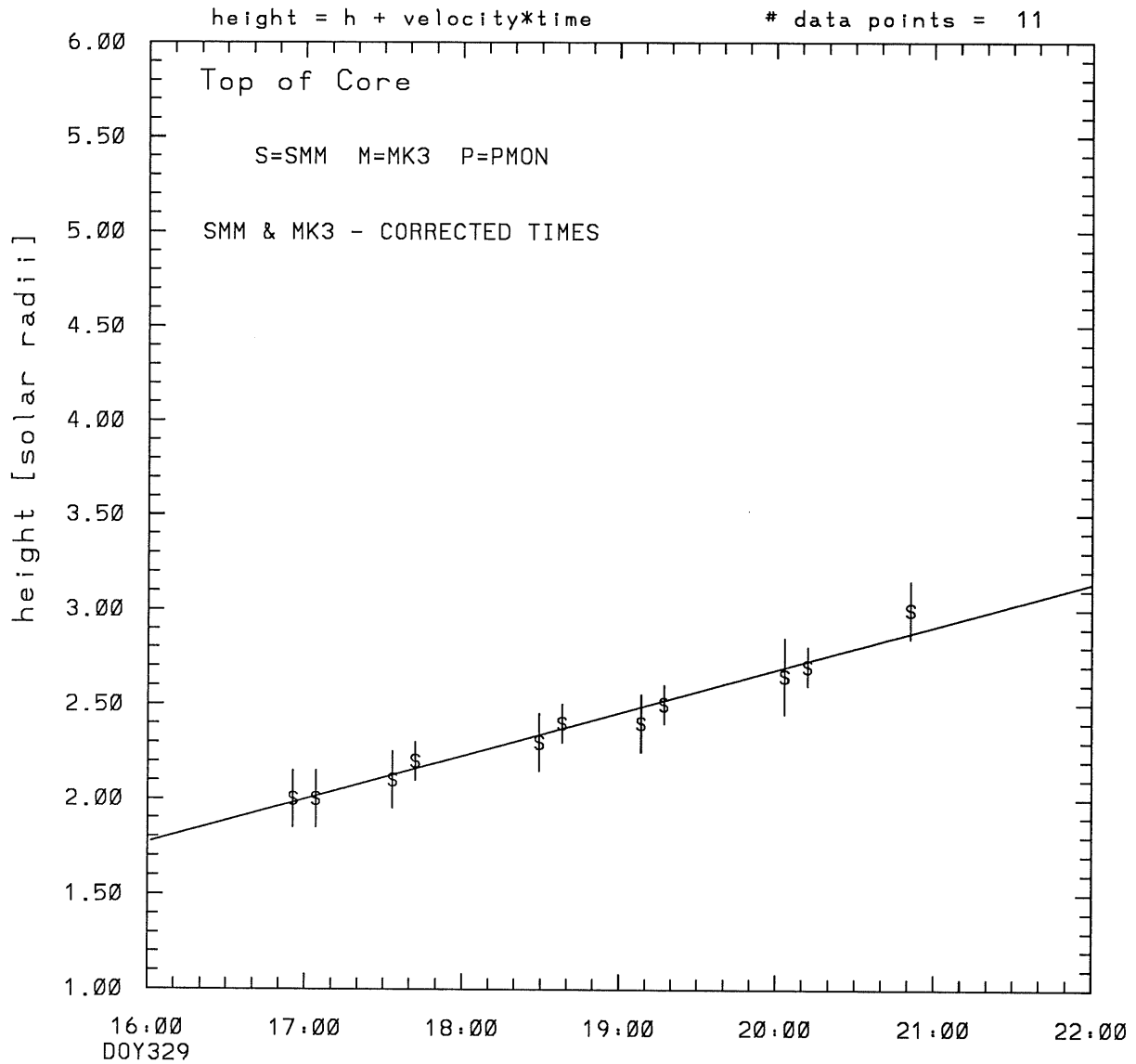
The correlation between the data and the term linear in time = 0.1041E+01

The correlation between the data and the time\*\*2 term = 0.1048E+01

The correlation between the data and the complete equation of motion = 0.9915E+00

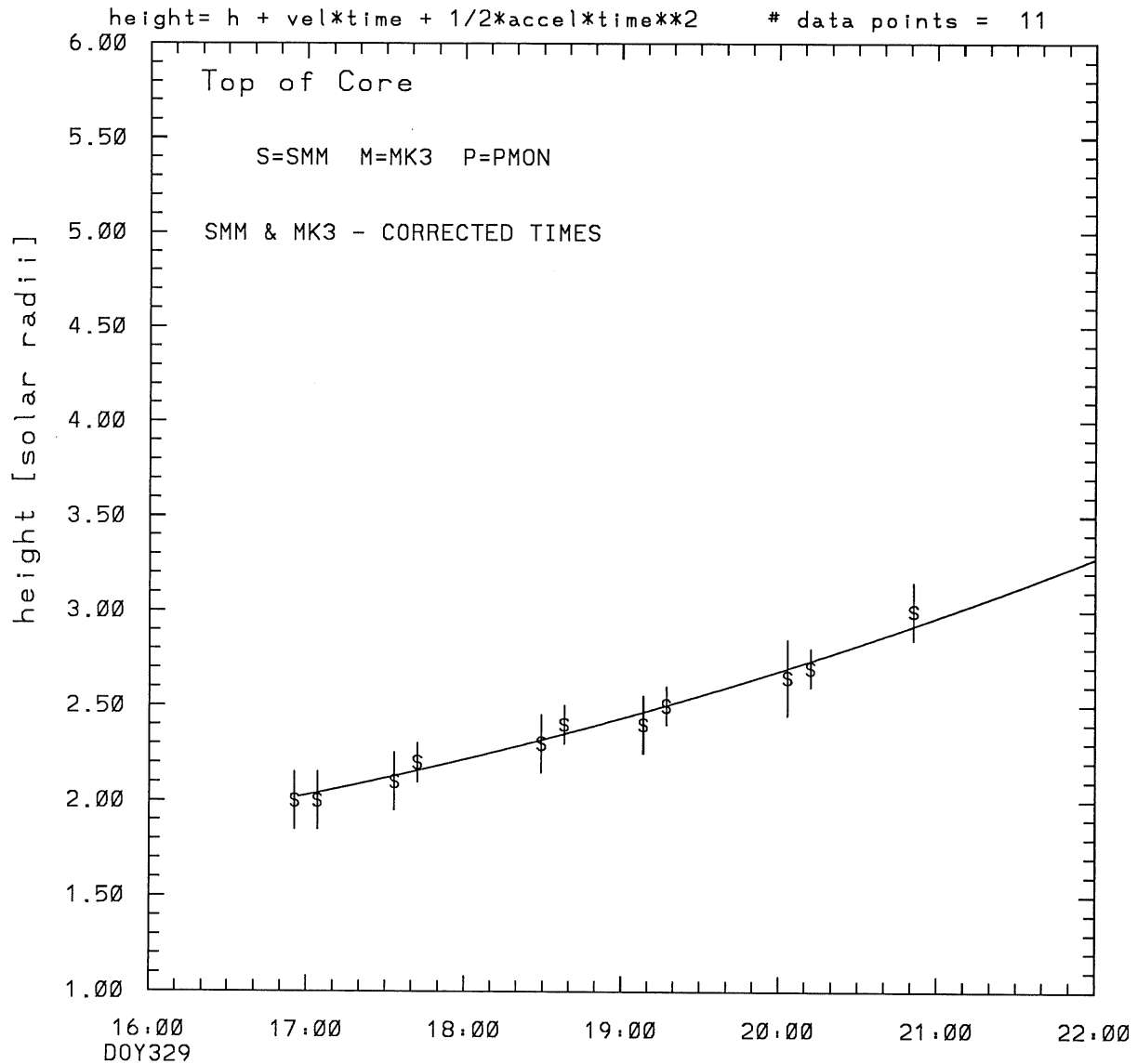
SEE BEVINGTON "Data Reduction and Error Analysis" [1969]

SMM C/P 1984 DOY329 292 +/- 0 degrees



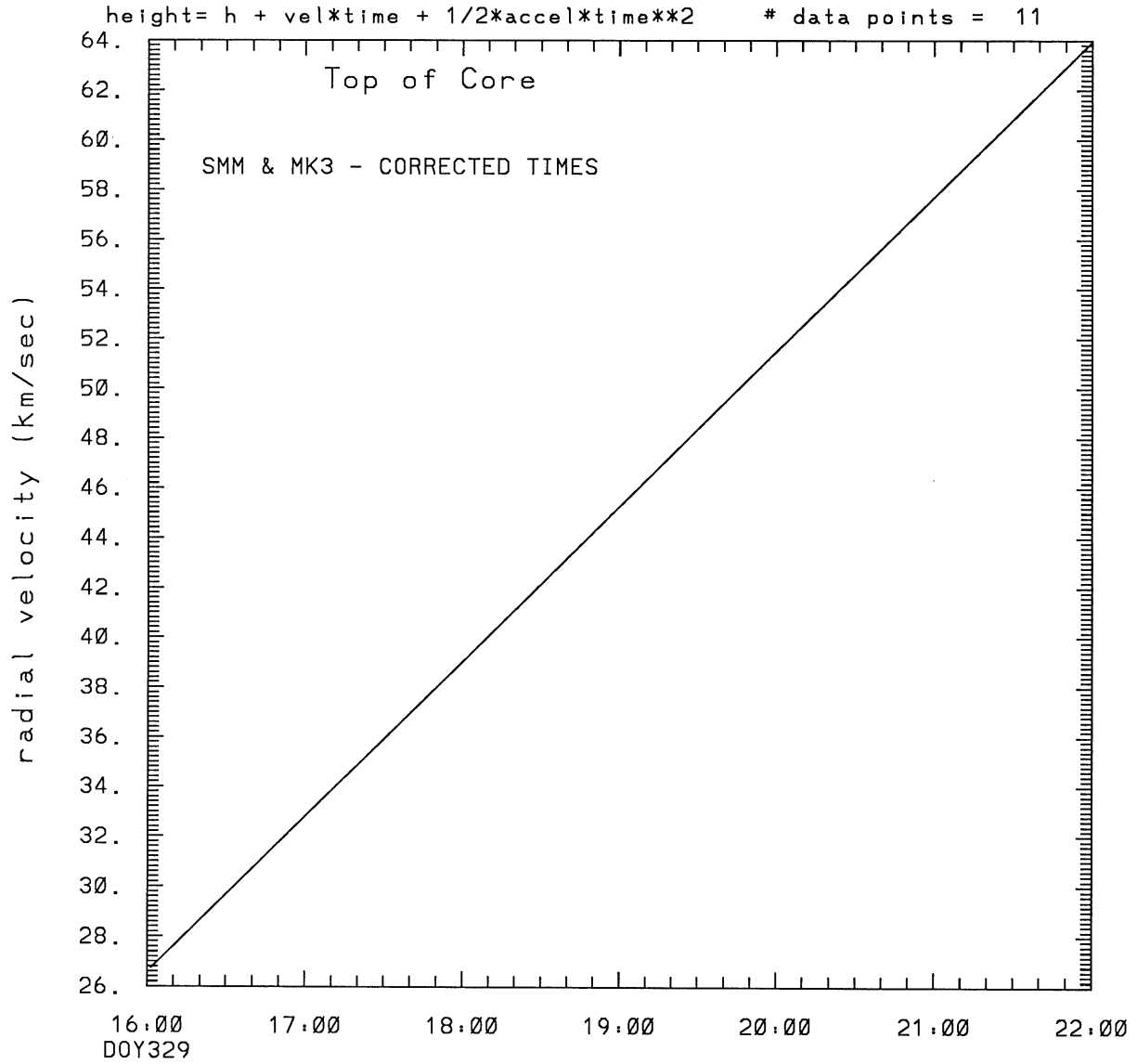
tstart=DOY329 12:39 +/- 2.1 [min.]  
radial velocity= 44. +/- 2. [km/sec]

SMM C/P 1984 DOY329 292 +/- 0 degrees



tstart=DOY329 11:44 from derivative=0  
Event begins at 1.58 Solar Radii  
radial acceleration =  $0.0017 \pm 0.0012$  [km/sec\*\*2]

SMM C/P 1984 DOY329 292 +/- 0 degrees



tstart=DOY329 11:44 from derivative=0  
Event begins at 1.58 Solar Radii  
radial acceleration=0.173E-02 km/sec\*\*2

\*\*\*\*\*

This is a 1 order run

\*\*\*\*\*

\*\*\*\*\*

INPUT:

\*\*\*\*\*

year	doy	time	radii	error in radius	angle	error in angle	datatype
1984	329	16:55:25	2.00	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17: 4: 9	2.00	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:33:26	2.10	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:42:10	2.20	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	18:29:25	2.30	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	18:38:10	2.40	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	19: 8:25	2.40	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	19:17: 9	2.50	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	20: 3:23	2.65	+/- 0.20	292.0	+/- 0.5	SMM
1984	329	20:12: 8	2.70	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	20:51:10	3.00	+/- 0.15	292.0	+/- 1.0	SMM

\*\*\*\*\*

Structure being measured:

Top of Core

\*\*\*\*\*

\*\*\*\*\*

OUTPUT:

\*\*\*\*\*

START TIME:

Event began at  $t = 0 + -0.203E+03 +/- 0.211E+01$  [minutes]

In more convenient units:

Event began at DOY 329 12:39 +/- 0.211E+01 [minutes]

Origin defined at DOY329 16: 0

RADIAL INFORMATION:

RADIAL VELOCITY = 44. +/- 2. km/sec

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.177E+01 +/- 0.385E-01 [solar radii]  
c(2) = 0.380E-02 +/- 0.214E-03 [radii/min]  
c(2) = 0.441E+02 +/- 0.249E+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)= 0.42188E-01 [radii] see Bevington pg. 114  
error in c(2)= 0.23462E-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) = 292. +/- 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 16:55 = 0.000E+00 km/sec

The TOTAL velocity at 16:55 = 44. km/sec

The TANGENTIAL velocity at 17: 4 = 0.000E+00 km/sec

The TOTAL velocity at 17: 4 = 44. km/sec

The TANGENTIAL velocity at 17:33 = 0.000E+00 km/sec

The TOTAL velocity at 17:33 = 44. km/sec

The TANGENTIAL velocity at 17:42 = 0.000E+00 km/sec

The TOTAL velocity at 17:42 = 44. km/sec

The TANGENTIAL velocity at 18:29 = 0.000E+00 km/sec

The TOTAL velocity at 18:29 = 44. km/sec

The TANGENTIAL velocity at 18:38 = 0.000E+00 km/sec

The TOTAL velocity at 18:38 = 44. km/sec

The TANGENTIAL velocity at 19: 8 = 0.000E+00 km/sec

The TOTAL velocity at 19: 8 = 44. km/sec

The TANGENTIAL velocity at 19:17 = 0.000E+00 km/sec

The TOTAL velocity at 19:17 = 44. km/sec

The TANGENTIAL velocity at 20: 3 = 0.000E+00 km/sec

The TOTAL velocity at 20: 3 = 44. km/sec

The TANGENTIAL velocity at 20:12 = 0.000E+00 km/sec

The TOTAL velocity at 20:12 = 44. km/sec

The TANGENTIAL velocity at 20:51 = 0.000E+00 km/sec

The TOTAL velocity at 20:51 = 44. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.31

Standard Deviation in start time measurement = 0.755E+02

Error in time = 0.46397E+02 using best fit method

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

Value of reduced Chi Squared returned from nllst2 = 0.246E-02

Reduced Chi Squared = 0.301E-01

Chi Squared = 0.270E+00

The probability for exceeding chi square = 0.100E+01

The correlation coefficient = 0.984E+00

The probability that no LINEAR correlation exists between the variables = 0.4232E-07

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

\*\*\*\*\*  
This is a 2 order run  
\*\*\*\*\*

\*\*\*\*\*  
INPUT:  
\*\*\*\*\*

year	doy	time	radii	error in radius	error in angle	angle	datatype
1984	329	16:55:25	2.00	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17: 4: 9	2.00	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:33:26	2.10	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	17:42:10	2.20	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	18:29:25	2.30	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	18:38:10	2.40	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	19: 8:25	2.40	+/- 0.15	292.0	+/- 0.5	SMM
1984	329	19:17: 9	2.50	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	20: 3:23	2.65	+/- 0.20	292.0	+/- 0.5	SMM
1984	329	20:12: 8	2.70	+/- 0.10	292.0	+/- 0.5	SMM
1984	329	20:51:10	3.00	+/- 0.15	292.0	+/- 1.0	SMM

\*\*\*\*\*  
Structure being measured:  
Top of Core  
\*\*\*\*\*

\*\*\*\*\*  
OUTPUT:  
\*\*\*\*\*

START TIME:

tstart=DOY329 11:44 from derivative = 0  
Event begins at 1.58 Solar Radii  
Origin defined at DOY329 16: 0

RADIAL INFORMATION:

RADIAL ACCELERATION = 0.173E-02 +/- 0.117E-02 km/sec\*\*2

The computed RADIAL coefficients and errors FROM NLLST2 are:

c(1) = 0.188E+01 +/- 0.797E-01 [solar radii]  
c(2) = 0.229E-02 +/- 0.104E-02 [radii/min]  
c(2) = 0.266E+02 +/- 0.120E+02 [km/sec]  
c(3) = 0.447E-05 +/- 0.301E-05 [radii/min\*\*2]  
c(3) = 0.173E-02 +/- 0.117E-02 [km/sec\*\*2]

The computed ERRORS in coefficients [BEVINGTON] are:

Approximate error in c(1) = 0.79356E-01 [radii] Bevington pg 154 (8-30)  
Exact error in c(1) = 0.12793E-01 [radii] Bevington pg 154 (8-28)



Approximate error in c(2) = 0.10673E-02 [radii/min] Bevington pg 154 (8-30)  
Exact error in c(2) = 0.20109E-03 [radii/min] Bevington pg 154 (8-28)  
Approximate error in c(3) = 0.31193E-05 [radii/min\*\*] Bevington pg 154 (8-30)  
Exact error in c(3) = 0.72271E-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) = 292. +/- 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 16:55 = 0.000E+00 km/sec

The TOTAL velocity at 16:55 = 32. km/sec

The TANGENTIAL velocity at 17: 4 = 0.000E+00 km/sec

The TOTAL velocity at 17: 4 = 33. km/sec

The TANGENTIAL velocity at 17:33 = 0.000E+00 km/sec

The TOTAL velocity at 17:33 = 36. km/sec

The TANGENTIAL velocity at 17:42 = 0.000E+00 km/sec

The TOTAL velocity at 17:42 = 37. km/sec

The TANGENTIAL velocity at 18:29 = 0.000E+00 km/sec

The TOTAL velocity at 18:29 = 42. km/sec

The TANGENTIAL velocity at 18:38 = 0.000E+00 km/sec

The TOTAL velocity at 18:38 = 43. km/sec

The TANGENTIAL velocity at 19: 8 = 0.000E+00 km/sec

The TOTAL velocity at 19: 8 = 46. km/sec

The TANGENTIAL velocity at 19:17 = 0.000E+00 km/sec

The TOTAL velocity at 19:17 = 47. km/sec

The TANGENTIAL velocity at 20: 3 = 0.000E+00 km/sec

The TOTAL velocity at 20: 3 = 52. km/sec

The TANGENTIAL velocity at 20:12 = 0.000E+00 km/sec

The TOTAL velocity at 20:12 = 53. km/sec

The TANGENTIAL velocity at 20:51 = 0.000E+00 km/sec

The TOTAL velocity at 20:51 = 57. km/sec

\*\*\*\*\*

The following info is for estimating goodness of the fit

\*\*\*\*\*

Fit is ok [ier=1]

Standard Deviation in the height = 0.31

Standard Deviation in start time measurement = 0.755E+02

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

Reduced Chi Squared = 0.204E-01

Chi Squared = 0.163E+00

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 = 0.9105E+00

The correlation between the data and the time\*\*2 term = 0.9098E+00

The correlation between the data and the complete equation of motion = 0.9739E+00

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