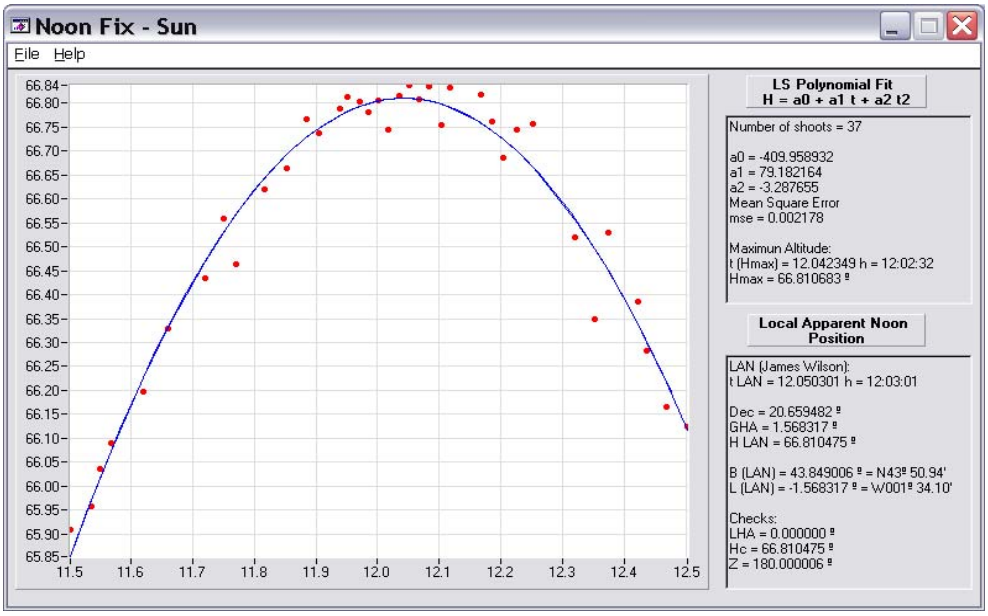
23/05/2009

GPS

t =	12:02:45 LAN	On a 8 m sloop
B =	43º 50.077' N	R = 42º
L =	01º 30.221' W	V = 5 kt
		NW wind
		sea = 1.5 m



Noon Fix

			Abs Error	Abs Error	Abs Error	Rel Error
t =	12.042349	12:02:32 H max				
t =	12.050301	12:03:01 LAN	-0.00446767 h	-16.0836 s	-16.0836 s	0.04%
B =	43.849006	43º 50.94' N	-0.0143849 º	-0.86309393 nm	-1598.45 m	0.03%
L =	-1.568317	01º 34.10' W	0.06463385 º	3.87803085 nm	7182.11 m	4.30%

Source of error: the course and speed of the sailboat, the sextant observations

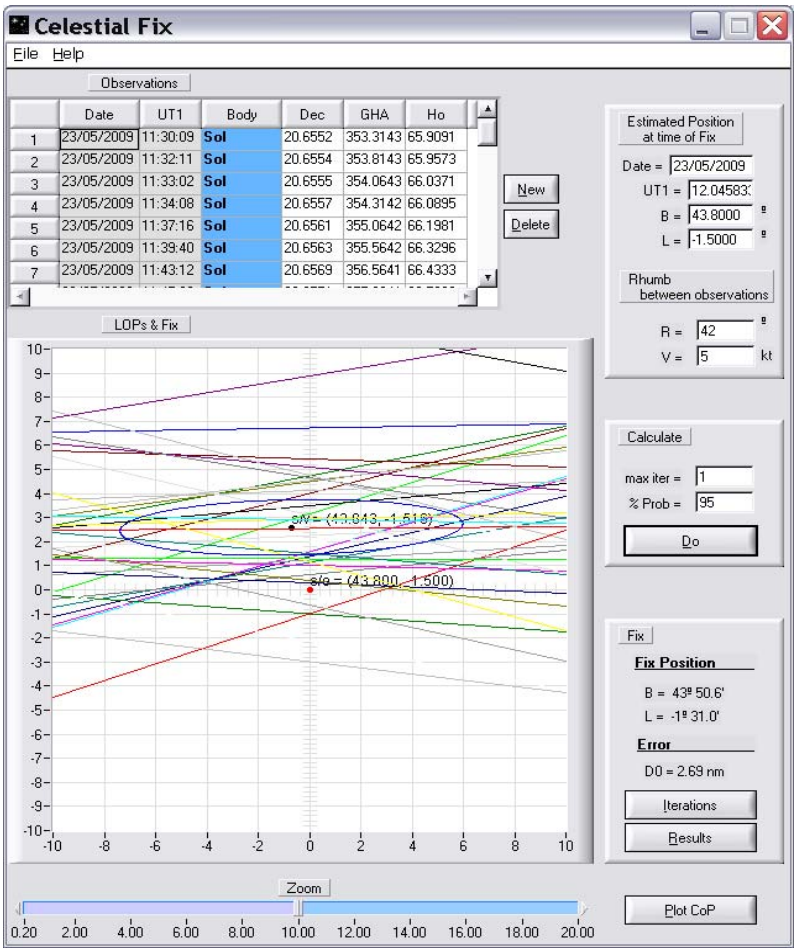
Celestial Fix

at = 12:02:45

```
Fix(43.843249444700525, -1.516290895891624) ( 43º 50.6'  -1º 31.0') LopLSSR
Fix(43.843247084873241, -1.516279201684948) ( 43º 50.6'  -1º 31.0') KaplanSR_Bm = 0
```

at = 12:03:01

```
Fix(43.843524521262673, -1.515948280798993) ( 43º 50.6'  -1º 31.0') LopLSSR
Fix(43.843522173171898, -1.515936297617551) ( 43º 50.6'  -1º 31.0') KaplanSR_Bm = 0
```



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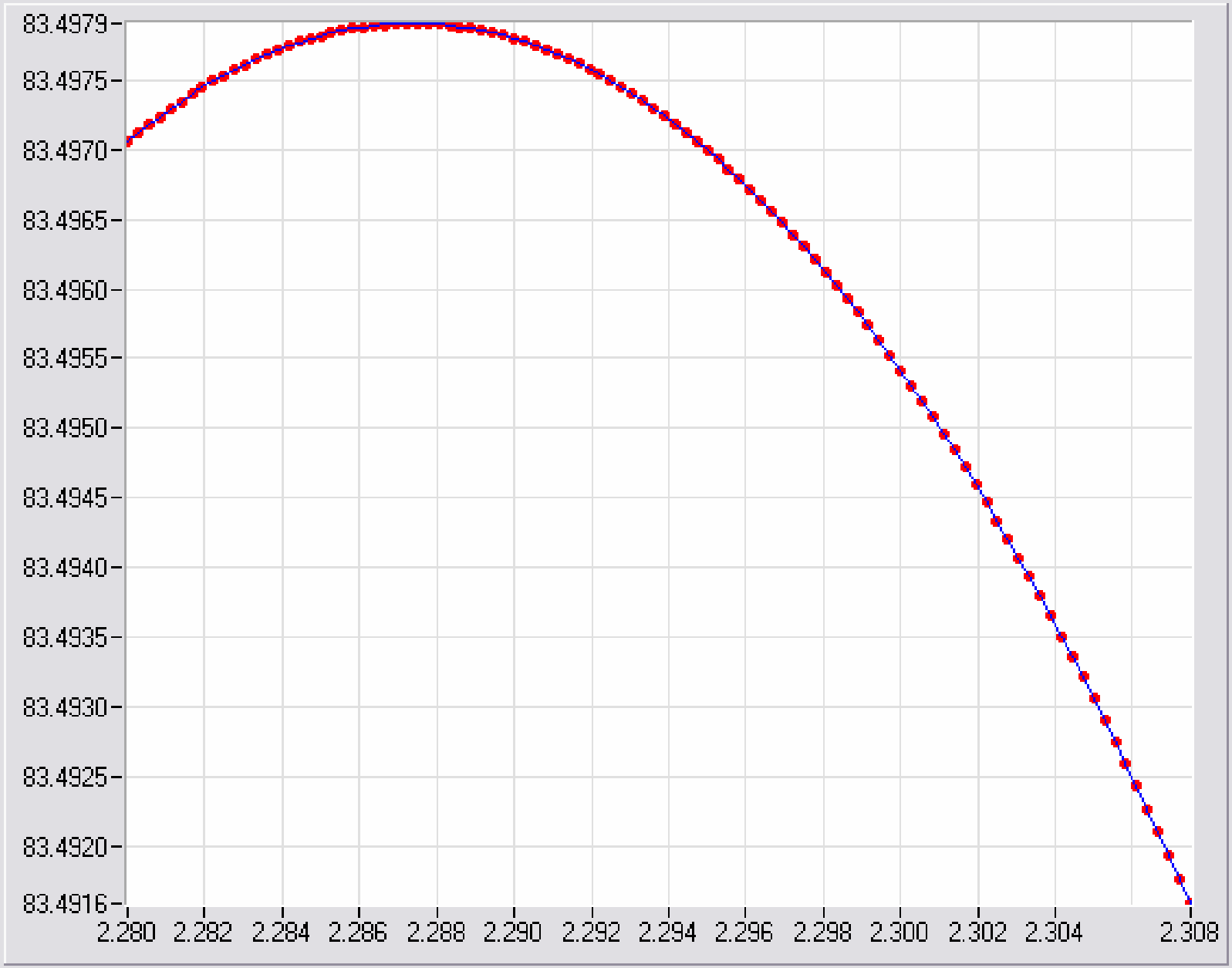
Noon Fix - Sun

File Help



LS Polynomial Fit
H = a0 + a1 t + a2 t2

Number of shoots = 100

a0 = 2.015556
a1 = 71.245394
a2 = -15.573637
Mean Square Error
mse = 0.000000

Maximun Altitude:
t (Hmax) = 2.287372 h = 02:17:15
Hmax = 83.497903 º

Local Apparent Noon Position

LAN (James Wilson):
t LAN = 2.287585 h = 02:17:15

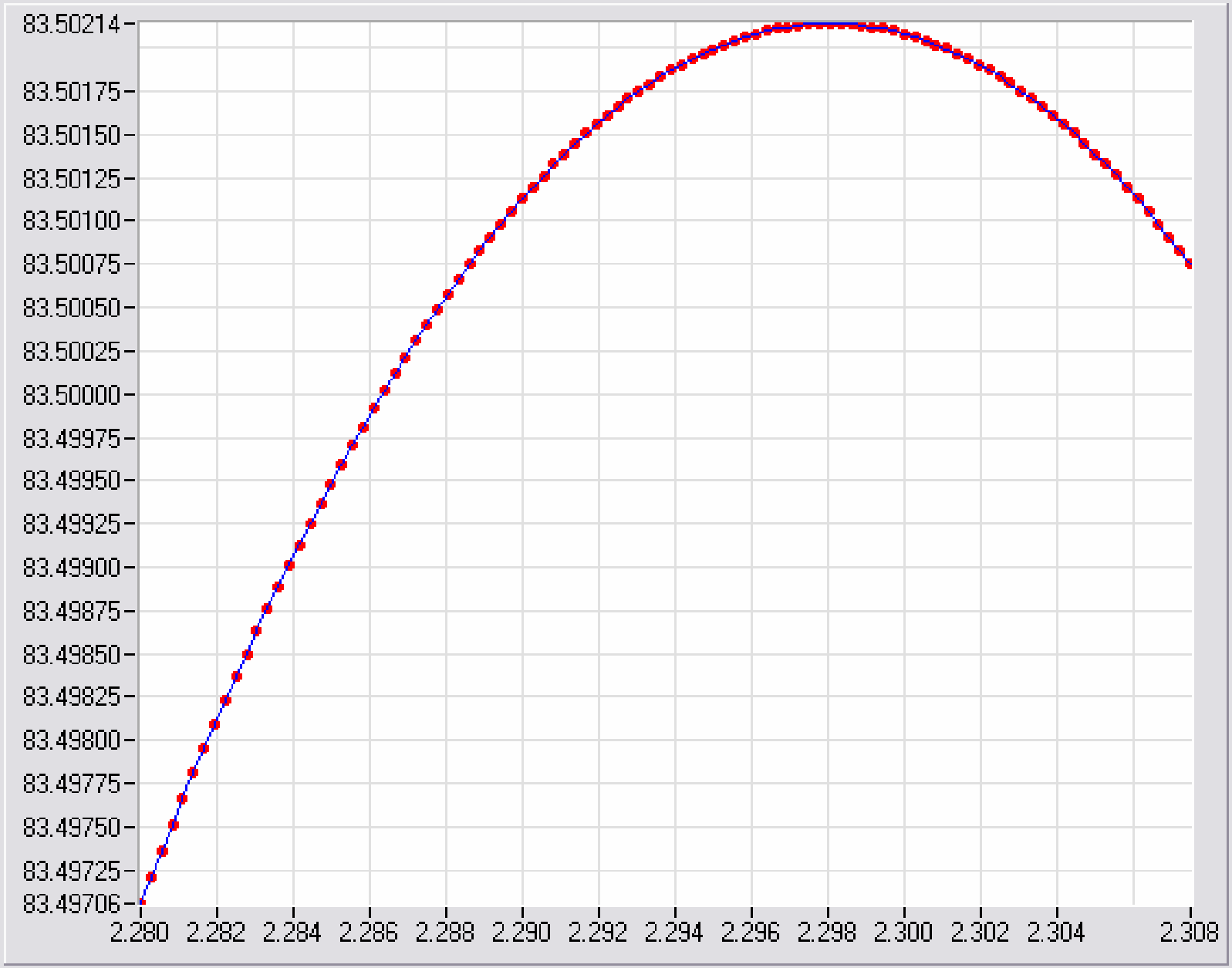
Dec = 21.502098 º
GHA = 214.999995 º
H LAN = 83.497902 º

B (LAN) = 15.000000 º = N15º 0.00'
L (LAN) = 145.000005 º = E145º 0.00'

Checks:
LHA = 360.000000 º
Hc = 83.497902 º
Z = 0.000010 º

Noon Fix - Sun

File Help



LS Polynomial Fit
H = a0 + a1 t + a2 t2

Number of shoots = 100

a0 = 1.154539
a1 = 71.667058
a2 = -15.592947
Mean Square Error
mse = 0.000000

Maximun Altitude:
t (Hmax) = 2.298060 h = 02:17:53
Hmax = 83.502142 º

Local Apparent Noon Position

LAN (James Wilson):
t LAN = 2.287582 h = 02:17:15

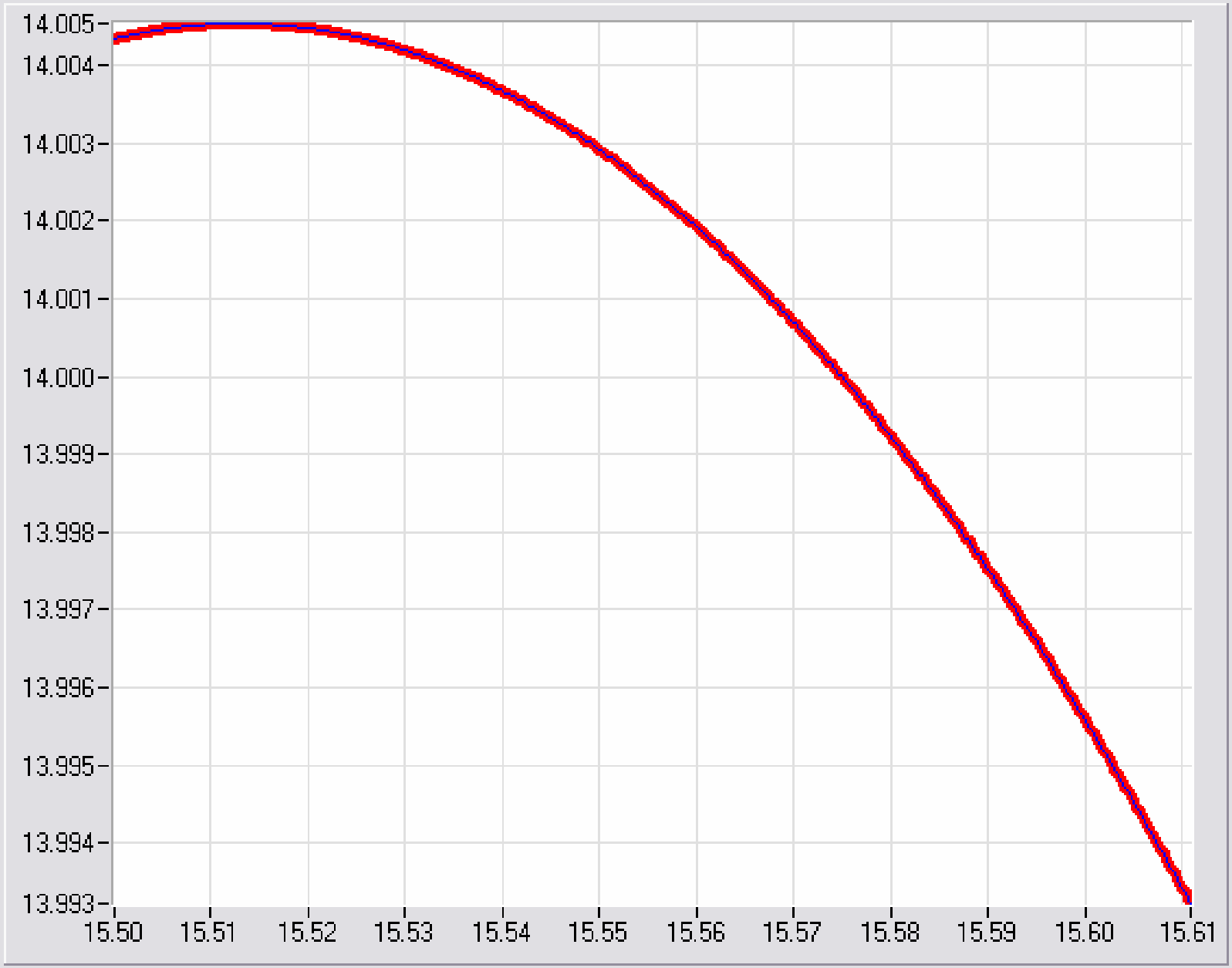
Dec = 21.502098 º
GHA = 214.999946 º
H LAN = 83.500430 º

B (LAN) = 15.002527 º = N15º 0.15'
L (LAN) = 145.000054 º = E145º 0.00'

Checks:
LHA = 360.000000 º
Hc = 83.500430 º
Z = 0.000009 º

Noon Fix - Sun

File Help



LS Polynomial Fit
H = a0 + a1 t + a2 t2

Number of shoots = 400

a0 = -269.997138
a1 = 36.614968
a2 = -1.180148
Mean Square Error
mse = 0.000000

Maximun Altitude:
t (Hmax) = 15.512873 h = 15:30:46
Hmax = 14.004543 º

Local Apparent Noon Position

LAN (James Wilson):
t LAN = 15.614283 h = 15:36:51

Dec = -22.980656 º
GHA = 55.955881 º
H LAN = 13.992406 º

B (LAN) = 53.026937 º = N53º 1.62'
L (LAN) = -55.955881 º = W055º 57.35'

Checks:
LHA = 0.000000 º
Hc = 13.992406 º
Z = 180.000004 º