

[NavList] Sun Moon Fix with Moon XM

AstroNavigation

File Algorithms!

Home
Identification of Stars and Planets
Nautical Almanac
Sights
Celestial Fix
About

Time

Date:

UT1:

Observer Position

B [+N/-S] = °

L [+E/-W] = °

Celestial Body

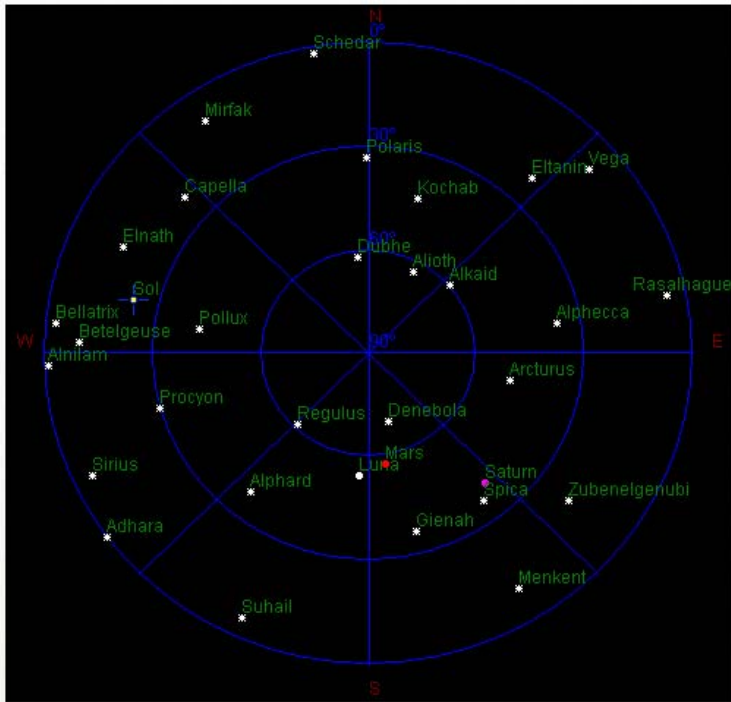
Sun

Moon

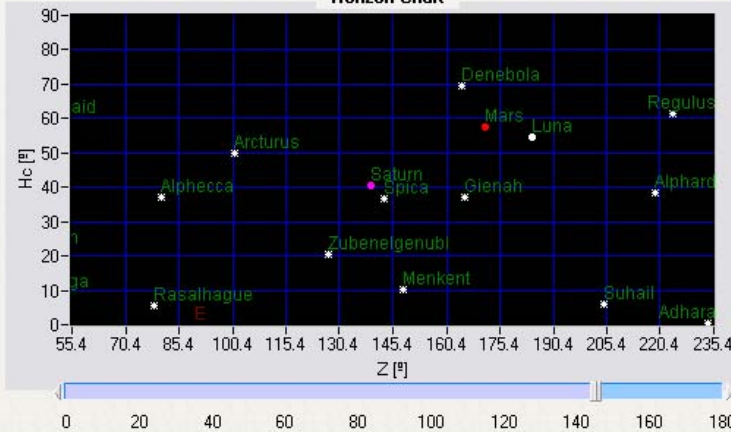
Planet:

Star:

Aries



Horizon Chart



	Body	Zn	Hc
1	Sol	283	23.3
2	Luna	184	54.8
3	Mars	171	57.6
4	Saturn	139	40.5
5	Adhara	234	0.4
6	Alioth	28	63.7
7	Alkaid	49	60.3
8	Alnilam	268	1.1
9	Alphard	219	38.5
10	Alphecca	80	37.0
11	Arcturus	101	49.9
12	Bellatrix	276	3.0
13	Betelgeuse	272	9.8
14	Capella	312	22.2
15	Denebola	165	69.7
16	Dubhe	354	62.2
17	Elnath	294	15.4
18	Eltanin	42	22.1
19	Gienah	166	37.0
20	Kochab	17	43.2
21	Menkent	148	10.3
22	Mirfak	326	9.0
23	Polaris	359	33.7
24	Pollux	278	42.6
25	Procyon	255	29.9
26	Rasalhague	79	5.6
27	Regulus	224	61.3
28	Schedar	350	2.1
29	Sirius	245	5.8
30	Spica	143	36.7
31	Suhail	205	6.0
32	Vega	49	9.2

26/06/2012 01:07:01 B.L = 34.17, -119.23

Zn = Hc =

Time

Date

UT1

Observer Position

B [+N/-S] = °

L [+E/-W] = °

Celestial Body

Sun

Moon

Planet

Star

Aries

Sight

Observer

h eye m

Sextant

IE

Atmospheric variables

Pressure hPa

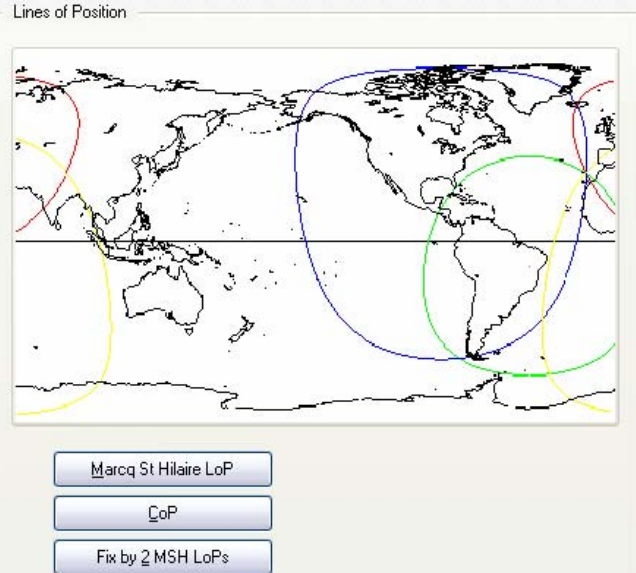
Temperature °C

Observation

Altitude Hs °

Limb

Reference



26/06/2012
01:07:01 UT1

Be = 34.170000 ° = 34° 10.2'
Le = -119.233333 ° = -119° 14.0'

ALMANAQUE NAUTICO - NAUTICAL ALMANAC
Moon
GHA = 121.732711 ° = 121° 44.0'
Dec = -0.976505 ° = - 0° 58.6'
SD = 15.778949 '
HP = 57.908372 '

CORRECCION DE LA ALTURA - ALTITUDE CORRECTED
Limb: upper
Ref: Sea Horizon
Hs = 54.5283 ° = 54° 31.7'
ie = 0.0000 '
heas = 2.2860 m
T = 10.0000 °C
P = 1010.0000 hPa
Hoi = 54.5283 °
dip = 0.0444 °
Ha = 54.4840 ° = 54° 29.0'
R = 0.0116 °
OB = -0.00303391 °
HP = 0.9651 °
PA = 0.55762753 °
SD = -0.2630 °
Aug = -0.00365568 °
SDag = -15.998290 '
Ho = 54.7671 ° = 54° 46.0'

DETERMINANTE DE LA RECTA DE ALTURA - Marcq St
LHA = 2.499378 ° = 2° 30.0'
Hc = 54.7752 ° = 54° 46.5'
Z = 184.3 °
p = Ho-Hc = -0.008179 ° = -0.490738 '

Time

Date

UT1

Observer Position

B [+N/-S] = °

L [+E/-W] = °

Celestial Body

Sun

Moon

Planet

Star

Aries

Sight

Observer

h eye m

Sextant

IE

Atmospheric variables

Pressure hPa

Temperature °C

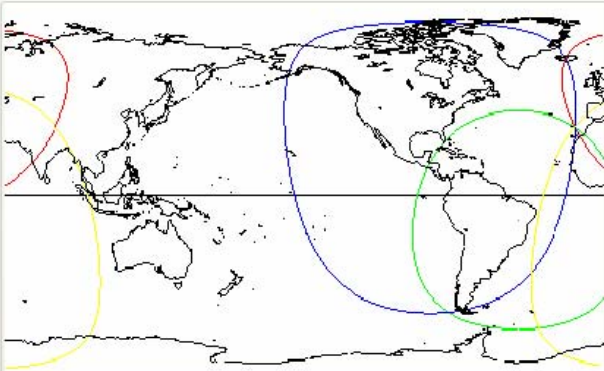
Observation

Altitude Hs °

Limb

Reference

Lines of Position



26/06/2012
00:59:46 UT1

Be = 34.170000 ° = 34° 10.2'
Le = -119.233333 ° = -119° 14.0'

ALMANAQUE NAUTICO - NAUTICAL ALMANAC
Sun
GHA = 194.228582 ° = 194° 13.7'
Dec = 23.347490 ° = 23° 20.8'
SD = 15.733746 '
HP = 0.144183 '

CORRECCION DE LA ALTURA - ALTITUDE CORRECTIO
Limb: lower
Ref: Sea Horizon
Hs = 24.6133 ° = 24° 36.8'
ie = 0.0000 '
heas = 2.2860 m
T = 10.0000 °C
P = 1010.0000 hPa
Hoi = 24.6133 °
dip = 0.0444 °
Ha = 24.5690 ° = 24° 34.1'
R = 0.0354 °
DB = -0.00000164 °
HP = 0.0024 °
PA = 0.00218384 °
SD = 0.2622 °
Aug = 0.00000457 °
SDag = 15.734020 '
Ho = 24.7980 = 24° 47.9'

DETERMINANTE DE LA RECTA DE ALTURA - Marcq St
LHA = 74.995248 ° = 74° 59.7'
Hc = 24.7874 ° = 24° 47.2'
Z = 282.4 °
p = Ho-Hc = 0.010544 ° = 0.632623 '

AstroNavigation

File Algorithms!

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Time

Date: 26/06/2012

UT1: 00:59:46

Observer Position

B [+N/-S] = 34.170000 °

L [+E/-W] = -119.233333 °

Celestial Body

Sun

Moon

Planet: Venus

Star: Acamar

Aries

Observations

	Date	UT1	Body	Dec	GHA	Ho	Hs
1	26/06/2012	01:07:01	Moon	-0.9765	121.7327	54.7671	
2	26/06/2012	00:59:46	Sun	23.3475	194.2286	24.7980	

Estimated Position at time of Fix

Date: 26/06/2012

UT1: 00:59:46

B = 34.1700 °

L = -119.2333 °

Rhumb between observations

COG = 0.0 °

SOG = 0.0 kt

LS Calculation

max iter = 1

% Prob = 95

Output

Fix Position

B = 34° 10.7'

L = -119° 14.6'

Error

DO = 0.75 nm

Plot CoPs

LOPs & Fix

Zoom: 0.20 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00

español english française

```

SummerLoP 1   tObs:  34.086667   -118.054528   34.253333   -121.235052
SummerLoP 1   tFix:  34.086667   -118.054528   34.253333   -121.235052
SummerLoP 2   tObs:  34.086667   -119.268460   34.253333   -119.224327
SummerLoP 2   tFix:  34.086667   -119.268460   34.253333   -119.224327
(-24.659643988572572, -148.722748429861440) (-24° 39.6' -148° 43.4')   VectorSolution I1 = 0
(34.178871759410733, -119.244030242368851) ( 34° 10.7' -119° 14.6')   VectorSolution I2 = 0
(34.178871759410690, -119.244030242369320) ( 34° 10.7' -119° 14.6')   VanAllen I1 = 0
(-24.659643988572462, -148.722748429861809) (-24° 39.6' -148° 43.4')   VanAllen I2 = 0
(34.178873308287734, -119.244029726421999) ( 34° 10.7' -119° 14.6')   TwoMarcqLopRunningFix = 0
Fix - numMaxIter = 1
B[0-90][+N/-S] L[0-180][+E/-W]
(34.178873308287756, -119.244028601746990) ( 34° 10.7' -119° 14.6')   LopLSSR = 0
(34.178873308287756, -119.244028601747004) ( 34° 10.7' -119° 14.6')   KaplanSR_Bm = 0

```


TWO Circles of Position
 CoP1 = 121.732711 -0.976505 54.767066
 CoP2 = 194.228582 23.347490 24.797961

Vector Solution for the Intersection of two Circles of Equal Altitude

THE JOURNAL OF NAVIGATION (2008), 61, 355-365. The Royal Institute of Navigation

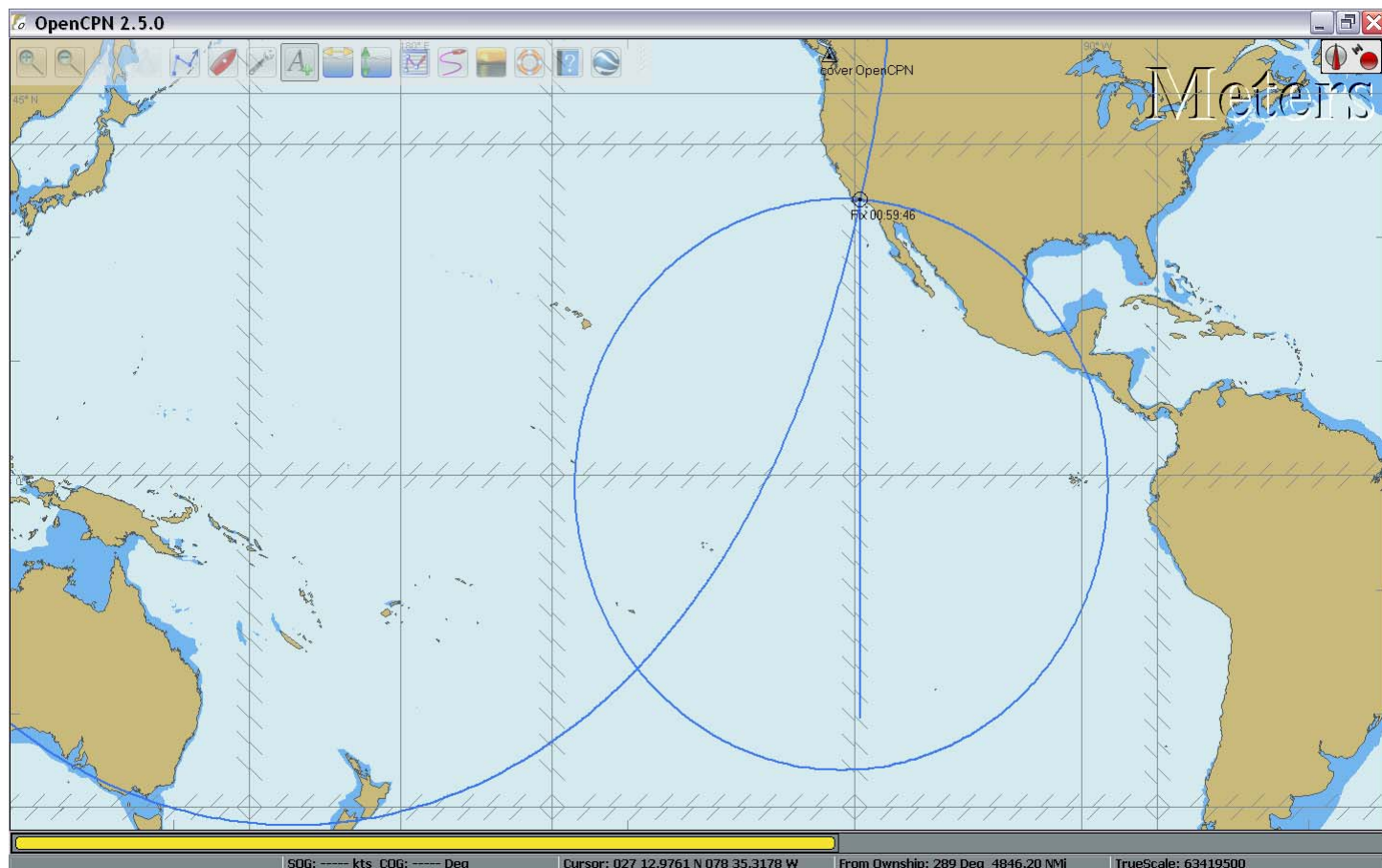
Andrés Ruiz González - Navigational Algorithms - <http://sites.google.com/site/navigationalalgorithms/>

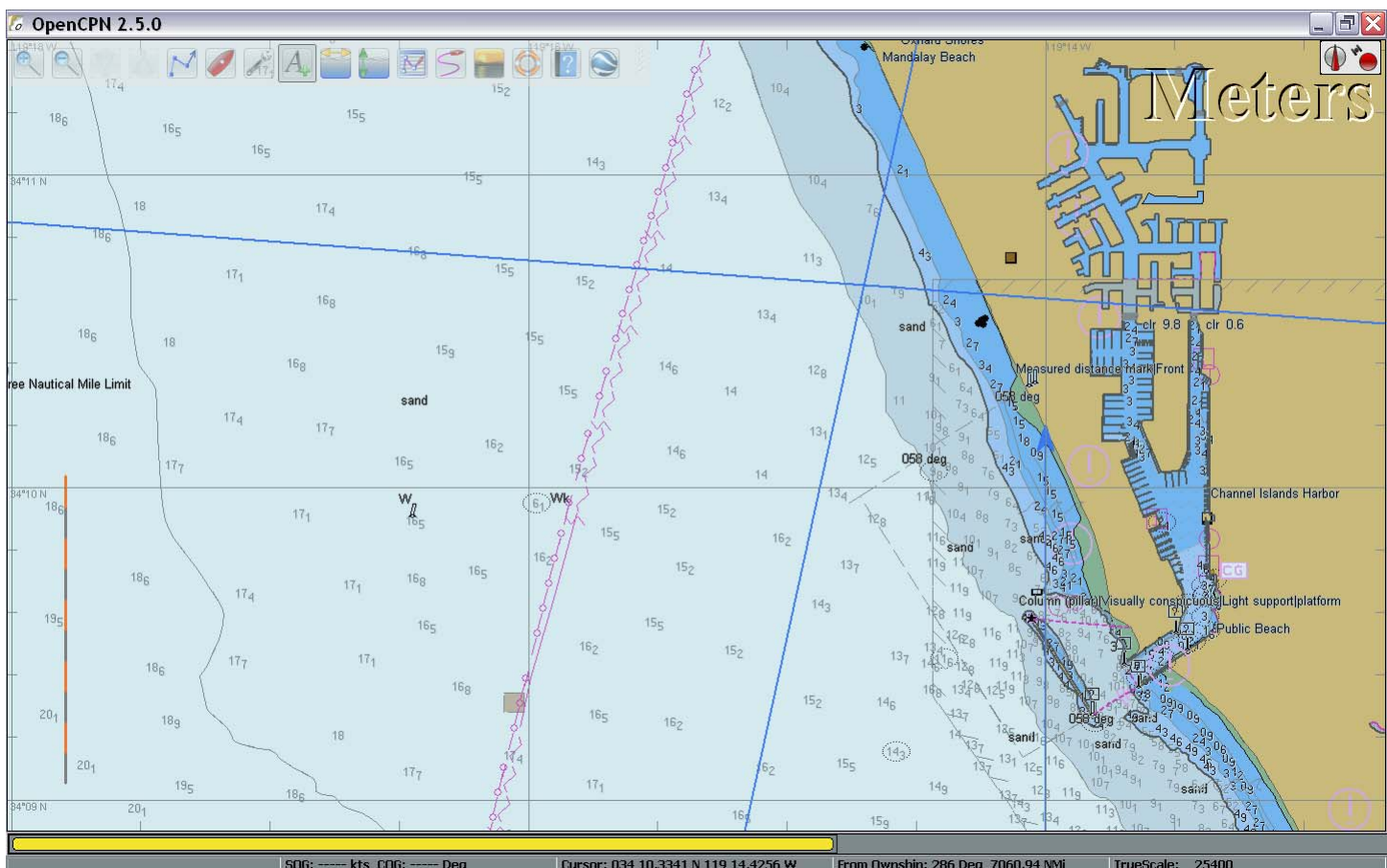
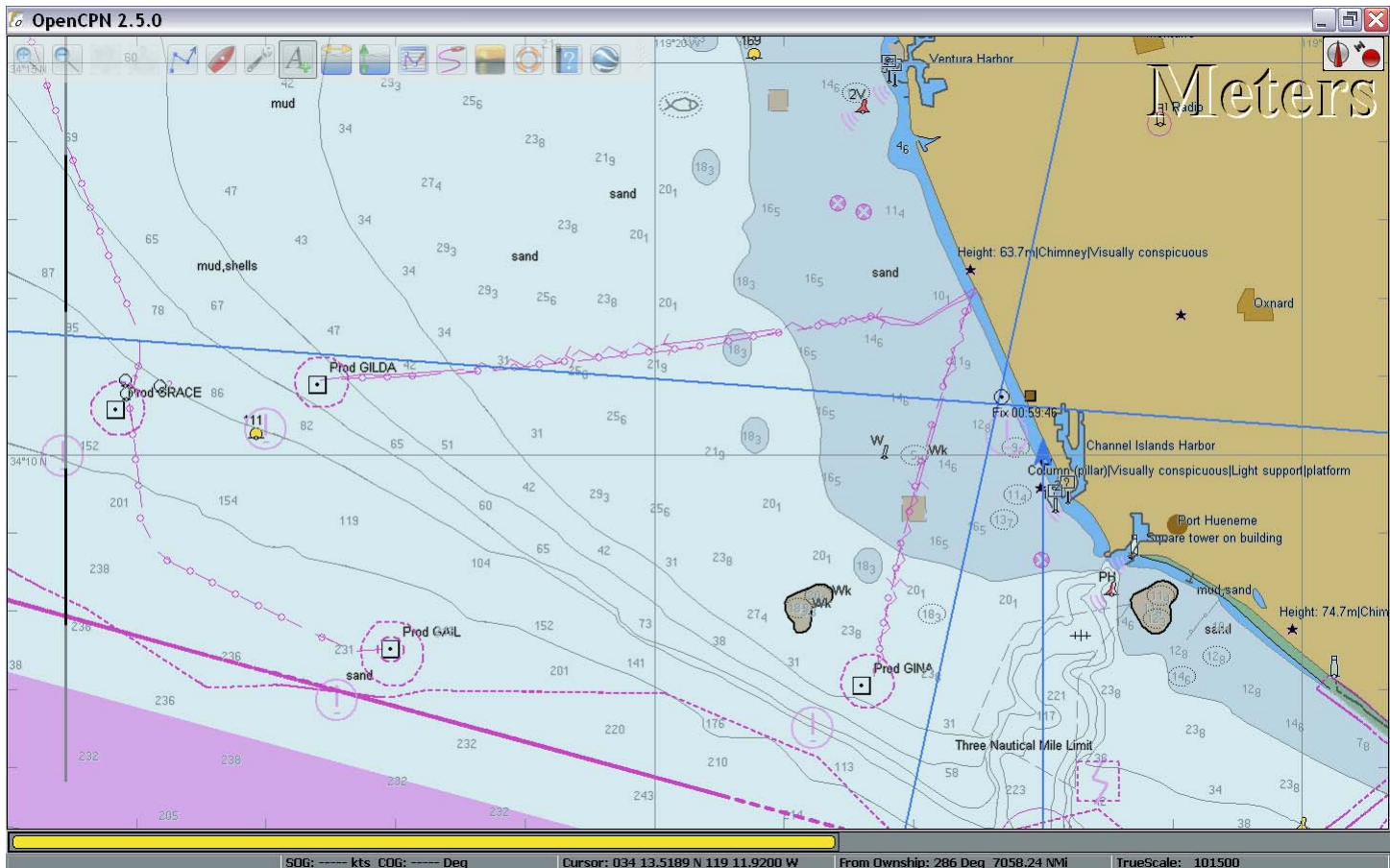
iter	Err	Be	Le	B1	L1	B2	L2	GHA1f	declf	GHA2f	dec2f	
0	0.751888403133598			34.178871	-119.244031	-119.244031	-24.659644	-24.659644	-148.722748	34.178871	-	
119.244031		121.732711		-0.976505		194.228582		23.347490				
I1:	-24.659644	-148.722748										
I2:	34.178871	-119.244031										

An analytical solution of the two star sight problem of celestial navigation

James A. Van Allen. NAVIGATION Vol. 28, No. 1, 1981

iter	Err	Be	Le	B1	L1	B2	L2	GHA1f	declf	GHA2f	dec2f	
0	0.751888403147233			34.178871	-119.244031	-119.244031	-24.659644	34.178871	-119.244031	-24.659644	-	
148.722748		121.732711		-0.976505		194.228582		23.347490				
I1:	34.178871	-119.244031										
I2:	-24.659644	-148.722748										





Andrés Ruiz
 Navigational Algorithms
<http://sites.google.com/site/navigationalalgorithms/>