

[NavList] Daytime Venus Lunar 20120813

Astronavigation by Lunar Distances

File

Home Time & DR Almanac Parameters Lunar Other Calculations About...

Time of the observation

Date

UT1

Position / DR

Latitude ° +N/-S

Longitude ° +E/-W

Notes

Time:

- approximate for lunars
- exact for almanac
- exact for sextant arc error

Position:

- DR for lunars
- True for sextant arc error

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Observer

h eye m

Sextant


IE

Atmospheric variables

Pressure hPa

Temperature °C

NAVIGATIONAL ALGORITHMS
Corrections for Sextant Altitude



© Andrés Bello
San Sebastián - Donostia
42° 16' N 13° 42' W
<http://www.geocities.com/andresandgozalez>

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Lunar Observation (sextant)

Body: Venus

Lunar distance: 2.096667

Moon limb: near

Body limb: center

Altitudes

Calculated altitudes
 Observed altitudes

Moon Altitude

Hs: 24.124025

Limb: lower

Body Altitude

Hs: 14.584964

Limb: lower

Options

Latitude

Use DR latitude
 Latitude by double altitudes

Calculation type

One iteration
 Minimize error

Reduce to same time (xls)

Time & Position

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NAVIGATIONAL ALGORITHMS



Lunar Distance
v2010 - 2012
©Andrés Ruiz González
San Sebastián - Donostia
43° 19'N 002°W
<http://sites.google.com/site/navigationalalgorithms/>

[Navigational Algorithms](#)
Wikipedia: [english](#) [español](#)

[NavList] Daytime Venus Lunar 20120813

13/08/2012

13:43:56 UT1

Geocentric equatorial coordinates

Moon:

GHA = 75.519506 ° = 75° 31.2'

Dec = 20.817984 ° = 20° 49.1'

Phase: 17% (-)

Venus

GHA = 72.529314 ° = 72° 31.8'

Dec = 19.932805 ° = 19° 56.0'

Geocentric lunar distance

LD = 2.939469 ° = +02° 56' 22.0881"

DR:

B = 34.173333 = 34° 10.4'

L = -119.230000 = -119° 13.8'

IE = 0.000000 '

air T = 18.9 °C

air P = 1012.5 hPa

h Eye = 1.83 m

Dip = 0.039668

Time by lunar distances

Moon:

Hs = 48.792140 = 48° 47.5'

Limb = 0

SD = 14.995843 '

HP = 55.034158 '

R = 0.013808 °

OB = -0.000903 °

PA = 0.603828 °

AG = 0.003045 °

SDag = 15.178531 '

Body: Venus

Hs = 46.512816 = 46° 30.8'

Limb = 0

SD = 0.200558 '

HP = 0.211366 '

R = 0.014956 °

OB = -0.000003 °

PA = 0.002423 °

AG = 0.000000 °

SDag = 0.200567 '

Lunar observation:

LDs = 2.096667 = 2° 5.8'

Moon Limb = 1

body Limb = 0

Clearing Lunar Distance:

m = 48.752472 = 48° 45.1'

M = 49.342492325263983 = 49° 20.5'

s = 46.473148 = 46° 28.4'

S = 46.460613753021619 = 46° 27.6'

d = 2.349642 = 2° 21.0'

T1 = 12.000000 LD1 = 3.743580

Tc = 13.738065 LDo = 2.937177

T2 = 14.000000 LD2 = 2.815648

Error:

Ta = 13:43:56LDc = 2° 56.4'

Tc = 13:44:17LDo = 2° 56.2'

Tc = 13:44:17LDc = 2° 56.2'

|LDo-LDc(Ta)| = 0.002292° = 0.137526'

|LDo-LDc(Tc)| = 0.000411° = 0.024685'

|Ta-Tc| = 0.350563 min = 21.033784 s

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Lunar Observation (sextant)

Body Venus

Lunar distance 2.096667 °

Moon limb near

Body limb near

Options

Latitude

Use DR latitude

Latitude by double altitudes

Calculation type

One iteration

Minimize error

Altitudes

Calculated altitudes

Observed altitudes

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Moon Limb = 1

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Clearing Lunar Distance:

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M = 49.342492325263983 = 49° 20.5'

s = 46.473148 = 46° 28.4'

S = 46.460613753021619 = 46° 27.6'

d = 2.352985 = 2° 21.2'

T1 = 12.000000 LD1 = 3.743580

Tc = 13.732366 LDo = 2.939821

T2 = 14.000000 LD2 = 2.815648

Error:

Ta = 13:43:56LDc = 2° 56.4'

Tc = 13:43:57LDo = 2° 56.4'

Tc = 13:43:57LDc = 2° 56.4'

|LDo-LDc(Ta)| = 0.000352° = 0.021131'

|LDo-LDc(Tc)| = 0.000419° = 0.025112'

|Ta-Tc| = 0.008605 min = 0.516300 s