

[NavList] Daytime Jupiter Lunar 20120812

Astronavigation by Lunar Distances

File

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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

Lunar distance

Moon limb

Body limb

Altitudes

Calculated altitudes
 Observed altitudes

Moon Altitude

Hs

Limb

Body Altitude

Hs

Limb

Options

Latitude

Use DR latitude
 Latitude by double altitudes

Calculation type

One iteration
 Minimize error

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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](#)

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12/08/2012
13:29:16 UT1
Geocentric equatorial coordinates
Moon:
GHA = 83.984024 ° = 83° 59.0'
Dec = 21.483762 ° = 21° 29.0'
Phase: 25% (-)
Jupiter
GHA = 92.979363 ° = 92° 58.8'
Dec = 21.468660 ° = 21° 28.1'
Geocentric lunar distance
LD = 8.369648 ° = +08° 22' 10.7331"

DR:
B = 34.173333 = 34° 10.4'
L = -119.230000 = -119° 13.8'

IE = 0.000000 '
air T = 21.1 °C
air P = 1015.9 hPa
h Eye = 1.83 m
Dip = 0.039668

Time by lunar distances

Moon:
Hs = 56.100595 = 56° 6.0'
Limb = 0
SD = 14.884612 '
HP = 54.625915 '
R = 0.010552 °
OB = -0.001046 °
PA = 0.507243 °
AG = 0.003314 °
SDag = 15.083447 '
Body: Jupiter
Hs = 63.698731 = 63° 41.9'
Limb = 0
SD = 0.309350 '
HP = 0.027599 '
R = 0.007763 °
OB = -0.000001 °
PA = 0.000203 °
AG = 0.000000 °
SDag = 0.309352 '
Lunar observation:
LDs = 9.068333 = 9° 4.1'
Moon Limb = -1
body Limb = 0
Clearing Lunar Distance:
m = 56.060927 = 56° 3.7'
M = 56.557618342333413 = 56° 33.5'
s = 63.659063 = 63° 39.5'
S = 63.651503361795093 = 63° 39.1'
d = 8.816943 = 8° 49.0'

T1 = 12.000000 LD1 = 7.633079
Tc = 13.489743 LDo = 8.370736
T2 = 14.000000 LD2 = 8.623394

Error:
Ta = 13:29:16LDc = 8° 22.2'
Tc = 13:29:23LDo = 8° 22.2'
Tc = 13:29:23LDc = 8° 22.2'
|LDo-LDc(Ta)| = 0.001088° = 0.065287'
|LDo-LDc(Tc)| = 0.000115° = 0.006886'
|Ta-Tc| = 0.117910 min = 7.074588 s