

"" 250624 - A study about "**Longitude from Lunar Altitudes simplified**" by Dr. George Bennett

US NAVY vocabulary definitions (as a reminder)

Observed Altitude = Sextant Altitude corrected for Instrument error, dip, refraction, parallax and SD

Apparent Altitude = Sextant Altitude corrected for only Instrument error

The following lines check the numerical example published in the referenced document which can be found at :

["https://navlist.net/imgx/Bennet-longitude-by-lunar-altitudes.pdf"](https://navlist.net/imgx/Bennet-longitude-by-lunar-altitudes.pdf),

Starting data: 22 Oct 2005, TT-UT = +65 s. DR position N41° / W015° Height of Eye = 3.0 m, Temp and QNH : Standard.

Sextant Index correction +2.0' . Vessel bottom track : 050° T / 6.0 kts

1 st run with Watch indications (purportedly keeping GMT)

Bodies	Watch Times	Altitudes	Position	Azimuth	Intercept
Hamal	06h54m25.3s	17°32.6' Apparent	Resulting Fix at 06h55m00.0s N41°15.3'/W015°35.9' (LOP's dispersion : 0.0 NM)	286.3°	+0.0 NM
Procyon	06h55m07.0s	53°50.2' Apparent		186.9°	+0.0 NM
Alioth	06h55m33.7s	41°17.8' Apparent		045.9°	+0.0 NM
Moon	09h07m55.0s	37°11.7' UL Apparent	N41°23.9'/W015°22.4' (DR from Fix hereabove)	277.1°	-2.3 NM

2nd run with Watch indications + 20 minutes

Body	Watch Time	Altitudes	Position	Azimuth	Intercept
Hamal	07h14m25.3s	17°32.6' Apparent	Resulting Fix at 07h15m00.0s N41°15.3'/W020°36.8' (LOP's dispersion : 0.0 NM)	286.3°	+0.0 NM
Procyon	07h15m07.0s	53°50.2' Apparent		186.9°	+0.0 NM
Alioth	07h15m33.7s	41°17.8' Apparent		045.9°	+0.0 NM
Moon	09h27m55.0s	37°11.7' UL Apparent	N41°23.9'/W020°23.2' (DR from Fix hereabove)	277.0°	-11.2 NM

Watch correction: $20/60 * 2.3 / (2.3 - 11.2) = -0.08614 \text{ h} = -5m10.1s$ (fast)

3rd run with Watch indications - 5m10.1s

Body	Watch Time	Altitudes	Position	Azimuth	Intercept
Hamal	06h49m15.2s	17°32.6' Apparent	Resulting Fix at 06h49m49.9s N41°15.3'/W014°18.2' (LOP's dispersion : 0.0 NM)	286.2°	+0.0 NM
Procyon	06h49m56.9s	53°50.2' Apparent		186.8°	+0.0 NM
Alioth	06h50m23.6s	41°17.8' Apparent		045.9°	+0.0 NM
Moon	09h02m44.9s	37°11.7' UL Apparent	N41°23.9'/W014°04.6' (DR from Fix hereabove)	277.2°	+0.0 NM

Bingo !

Fait au RSL en Pissotte, Vendée France, le 24 Juin 2025

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