

March 18, 1977 - VENUS daylight observation approaching RAPA ITI (Les Australes)

Celestial Navigation Data for 1977 Mar 18 at 0:02:17 UT

For Assumed Position: Latitude S 27 35.0
Longitude E 144 53.7

Object	Almanac Data				Altitude Corrections			
	GHA ° ' "	Dec ° ' "	Hc ° ' "	Zn °	Refr ' "	SD ' "	PA ' "	Sum ' "
SUN	178 30.6	S 1 04.9	+46 04.4	59.2	-1.0	16.1	0.1	15.2
MOON	199 13.8	S 5 31.3	+63 16.1	37.3	-0.5	15.6	25.8	40.9
VENUS	156 08.5	N16 19.0	+17 58.1	59.8	-3.0	0.4	0.4	-2.2

1 - VENUS intercept as per USNO precepts (lower limb and ignored phase effect)

UT = 00h02m17.0s DR Position S 27°35.0' - E 144°53.7' Height of Eye 15'

USNO Standard Conditions (P = 1010 Mb T = +10°C)

Height observed in Sextant: 18°03.7' Index Error 0.0'

Height of Eye: 15' Nautical Almanac Dip Correction: -3.8'

Height Observed at sea Level with Refraction effect: 18°03.7' - 3.8' = 17°59.9'

Altitude Correction as per USNO: -2.2'

Geocentric Observed height as per USNO: 17°57.7'

Intercept as per USNO: 17°57.7' - 17°58.1' = -0.4 NM (Away from Venus)

2 - VENUS intercept adequately computed after phase effects corrections

Phase effect in GHA = +0.3'

GHA corrected for Phase effect = 156°08.5' (USNO value here-above) + 0.3' = 156°08.8'

Local Hour Angle corrected for phase effect = 301°02.5' (vs. 301°02.2')

Phase effect in Declination = -0.2'

DEC corrected for phase effect = N 16°19.0 (USNO value here-above) - 0.2' = 16°18.8'

Hc corrected for phase effect = +17°58.4' as computed from corrected data here-above

Same entry data as above:

Height observed in Sextant: 18°03.7' Index Error 0.0'

Height of Eye: 15' Nautical Almanac Dip Correction: -3.8'

Height Observed at sea Level with Refraction effect: 18°03.7' - 3.8' = 17°59.9'

USNO Refraction Correction: -3.0' Topocentric height corrected for refraction 17°56.9'

No SD Correction. VENUS pinpoint bright dot seen in daylight through preset sextant. Hence **center of light** was actually observed, requiring data corrected for phase effect.

Parallax Correction from USNO: +0.4'

Geocentric observed height: 17°57.3'

Intercept: 17°57.3' - 17°58.4' = -1.1 NM (AWAY from Venus)

3 - Difference in intercepts resulting from inadequate USNO precepts: 0.7 NM