

Time Sight

2013 Jan 9 180035 (ZD +10, "Hawaii Time") upper limb of the sun disappears
 eye ht: 6^{ft}, 78° F/ 29.89" Hg, Latitude N 20° 01.4'

Convert time to UT, by adding +10 hours: 180035+100000= 280035 =
 1 day + 040035 or 2013 Jan 10 040035 Z

From the Nautical Almanac, we have for the sun

UT	GHA	DEC
04 00 00	238° 07.7'	S 21° 56.1'
00 35	08.8'	
04 00 35	238° 16.5'	S 21° 56.1'
Hs	00° 00.0'	
Refr/SD	-49.8'	
Dip	-02.4'	
Tmp/Pres	+03.0'	
Ho	-00° 49.2'	a negative Ho

Using Martelli Tables

Lat	N 20° 01.4'	Table I	4729
Dec	S 21° 56.1'	Table I	4674
L~d	41° 57.5'	Table II	15' 43.6"
Ho	-00° 49.2'	Table III*	16' 54.3"

			32' 37.9"
		Table IV	4548

t	82° 31' W (P.M.)	Table V	←-- 13951
GHA	-237° 76.5'		

Long -155° 45.5' or **W 155° 46'**

*Table III does not go below 0.0°. To find the entry for -00° 49.2', notice that entry +00° 49.2' is 14.3" lower than the entry for 00° 00.0'. Consequently, add this amount to the entry 00° 00.0': 16' 40" + 14.3" to get the value 16' 54.3'