

Rapid Sight Reduction Method

Scenario:

D.R. Position: $51^{\circ} 54'N 21^{\circ} 55'W$.

Date: 18 July 2009

Zone Time: $16^h 44^m (+1)$

DWT: $17^h 50^m 28^s$

DWE 40^s fast

Body observed: Sun L.L.

Sextant Alt: $32^{\circ} 10'.4$. Azimuth: 261°

Index error: $+0'.54$

Ht. of eye: 8m.

Temperature: $28^{\circ}C$. Pressure: 991mb.

Rapid Sight Reduction Method Sight Form.		
Step 1. Approx. Pos: $51^{\circ} 54'N, 21^{\circ} 55'W$		
Step 2. Calculate GMT at time of observation.		
Date: 18 July. 2009		
Zone time:	$18^d 16^h 44^m$	
Zone corrn:	$+1^h$	
Greenwich date:	$18^d 17^h 44^m 00^s$	
DWT:	$17^h 50^m 28^s$	
DWE:	-40^s	
UT:	$17^h 49^m 48^s$	
Step 3. Calculate GHA and Dec. of Sun.		
	GHA	Dec
UT 17^h	$73^{\circ} 26'.1$	$N20^{\circ} 54'.7$ (d:0'.5)
Inc. $49^m 48^s$:	<u>$12^{\circ} 27'.0$</u>	<u>$-0'.4$</u>
	$85^{\circ} 53'.1$	$N20^{\circ} 54'.3$
Step 4. Calculate LHA		
GHA:	$85^{\circ} 53'.1$	
Assumed Long:	<u>$21^{\circ} 53'.1$</u> (West -)	
LHA:	64° (-360 if reqd.)	
Convert azimuth angle (Z) to true azimuth (Zn):		
Azimuth Angle (Z)	= 98°	

$$\text{True azimuth (Zn)} \quad (360^\circ - Z) = 262^\circ$$

(see rules for calculating Zn below)

Rules for converting azimuth angle (Z) to true azimuth (Zn)		
	Lat. North	Lat. South
LHA > 180°	Zn = Z	Zn = 180° - Z
LHA < 180°	Zn = 360° - Z	Zn = 180° + Z

Step 5. Main table entry. Extract values for Hc, d, Z from main table using the following data from the calculations above:

Assumed Lat:	52° N
Dec. Sun (degrees) Dec°:	20°N (same)
Dec. Sun (minutes) Dec':	54'.3
LHA Sun:	64°
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	Hc	d	Z
Extracted values:	31° 33'	+45'	98°
Corrn. for Dec' 54'.0	<u>+40'</u>	(table 5)	
Corr. Alt. (Hc) =	32° 13'		

Step 6. Correct sextant altitude (Hs).

Sext. Alt. (Hs) =	32° 10'.4
Index error (IE) =	+0'.54
Dip (ht. 8m.) (D) =	<u>-5'.0</u> (table 6a)
Apparent Alt. (Ha) =	32° 05'.94
Alt. correction (R) =	+14'.5 (table 6d)
Added refrac'n (d) =	<u>+0'.1</u> (table 6c)
Observed Alt. (Ho) =	32° 20'.54

Step 7. Calculate intercept (p)

	Ho = 32° 20'.54
	Hc = <u>32° 13'.00</u>
Ho - Hc	p = +7'.54

∴ Intercept = 7.54 n.m. towards 262° (azimuth calculated at step 4)

