

Celestial Navigation

Estimation of Sun GHA & Dec.

Name: _____

1 ZT of 14 26 DR L $22^{\circ} 30.5' N$
 Observation 23-Dec $\lambda 108^{\circ} 57.5' E$

7 ZT of 14 40 DR L $21^{\circ} 04.3' S$
 Observation 20-Jun $\lambda 167^{\circ} 50.2' W$

CT	07 26 32	ZT	14 26	23-Dec
CE	0 09 f	ZD		
GMT				

CT	01 36 26	ZT	14 40	20-Jun
CE	3 47 s	ZD		
GMT				

GHA _____ Dec. _____

GHA _____ Dec. _____

2 ZT of 07 45 DR L $27^{\circ} 54.4' S$
 Observation 18-May $\lambda 041^{\circ} 15.2' E$

8 ZT of 16 30 DR L $29^{\circ} 49.8' S$
 Observation 28-Sep $\lambda 069^{\circ} 17.4' W$

CT	04 34 58	ZT	07 45	18-May
CE	10 23 s	ZD		
GMT				

CT	09 23 01	ZT	16 30	28-Sep
CE	6 57 s	ZD		
GMT				

GHA _____ Dec. _____

GHA _____ Dec. _____

3 ZT of 17 44 DR L $26^{\circ} 59.1' S$
 Observation 1-Oct $\lambda 148^{\circ} 22.7' E$

9 ZT of 06 20 DR L $28^{\circ} 28.3' N$
 Observation 21-Oct $\lambda 137^{\circ} 11.9' E$

CT	07 51 09	ZT	17 44	1-Oct
CE	6 59 f	ZD		
GMT				

CT	09 23 39	ZT	06 20	21-Oct
CE	3 45 f	ZD		
GMT				

GHA _____ Dec. _____

GHA _____ Dec. _____

4 ZT of 10 60 DR L $24^{\circ} 58.9' S$
 Observation 20-Sep $\lambda 119^{\circ} 07.2' W$

10 ZT of 11 49 DR L $29^{\circ} 14.1' S$
 Observation 5-May $\lambda 017^{\circ} 13.2' W$

CT	06 53 41	ZT	10 60	20-Sep
CE	5 58 s	ZD		
GMT				

CT	00 51 42	ZT	11 49	5-May
CE	3 01 f	ZD		
GMT				

GHA _____ Dec. _____

GHA _____ Dec. _____

5 ZT of 07 36 DR L $25^{\circ} 09.9' S$
 Observation 14-Aug $\lambda 142^{\circ} 05.4' W$

11 ZT of 18 45 DR L $21^{\circ} 12.5' S$
 Observation 31-Mar $\lambda 122^{\circ} 34.2' W$

CT	04 33 35	ZT	07 36	14-Aug
CE	2 43 s	ZD		
GMT				

CT	02 45 02	ZT	18 45	31-Mar
CE	0 21 s	ZD		
GMT				

GHA _____ Dec. _____

GHA _____ Dec. _____

6 ZT of 11 41 DR L $29^{\circ} 12.4' S$
 Observation 11-Dec $\lambda 121^{\circ} 36.9' E$

12 ZT of 11 16 DR L $22^{\circ} 39.8' N$
 Observation 2-Aug $\lambda 168^{\circ} 16.6' W$

CT	03 31 11	ZT	11 41	11-Dec
CE	9 28 s	ZD		
GMT				

CT	10 07 02	ZT	11 16	2-Aug
CE	9 05 s	ZD		
GMT				

GHA _____ Dec. _____

GHA _____ Dec. _____

1	ZT of Observation	14 26 23-Dec	DR L λ	22° 30.5' N 108° 57.5' E	7	ZT of Observation	14 40 20-Jun	DR L λ	21° 04.3' S 167° 50.2' W
	CT 07 26 32 CE 0 09 f GMT 07 26 23	ZT 14 26 ZD - 7 GMT 07 26 23		23-Dec		CT 01 36 26 CE 3 47 s GMT 01 40 13	ZT 14 40 ZD + 11 GMT 01 40	20-Jun	21-Jun
	GHA ~ 285°	Dec. ~S 23°				GHA ~ 195°	Dec. ~N 23°		
2	ZT of Observation	07 45 18-May	DR L λ	27° 54.4' S 041° 15.2' E	8	ZT of Observation	16 30 28-Sep	DR L λ	29° 49.8' S 069° 17.4' W
	CT 04 34 58 CE 10 23 s GMT 04 45 21	ZT 07 45 ZD - 3 GMT 04 45 18-May		18-May		CT 09 23 01 CE 6 57 s GMT 21 29 58	ZT 16 30 ZD + 5 GMT 21 30	28-Sep	28-Sep
	GHA ~ 240°	Dec. ~N 20°				GHA ~ 135°	Dec. ~0°		
3	ZT of Observation	17 44 1-Oct	DR L λ	26° 59.1' S 148° 22.7' E	9	ZT of Observation	06 20 21-Oct	DR L λ	28° 28.3' N 137° 11.9' E
	CT 07 51 09 CE 6 59 f GMT 07 44 10	ZT 17 44 ZD - 10 GMT 07 44		1-Oct		CT 09 23 39 CE 3 45 f GMT 21 19 54	ZT 06 20 ZD - 9 GMT 21 20	21-Oct	20-Oct
	GHA ~ 285°	Dec. ~0°				GHA ~ 135°	Dec. ~S 11°		
4	ZT of Observation	10 60 20-Sep	DR L λ	24° 58.9' S 119° 07.2' W	10	ZT of Observation	11 49 5-May	DR L λ	29° 14.1' S 017° 13.2' W
	CT 06 53 41 CE 5 58 s GMT 18 59 39	ZT 10 60 ZD + 8 GMT 19 00		20-Sep		CT 00 51 42 CE 3 01 f GMT 12 48 41	ZT 11 49 ZD + 1 GMT 12 49	5-May	5-May
	GHA ~ 105°	Dec. ~0°				GHA ~ 0°	Dec. ~N 20°		
5	ZT of Observation	07 36 14-Aug	DR L λ	25° 09.9' S 142° 05.4' W	11	ZT of Observation	18 45 31-Mar	DR L λ	21° 12.5' S 122° 34.2' W
	CT 04 33 35 CE 2 43 s GMT 16 36 17	ZT 07 36 ZD + 9 GMT 16 36		14-Aug		CT 02 45 02 CE 0 21 s GMT 02 45 23	ZT 18 45 ZD + 8 GMT 02 45	31-Mar	1-Apr
	GHA ~ 60°	Dec. ~N 12°				GHA ~ 210°	Dec. ~0°		
6	ZT of Observation	11 41 11-Dec	DR L λ	29° 12.4' S 121° 36.9' E	12	ZT of Observation	11 16 2-Aug	DR L λ	22° 39.8' N 168° 16.6' W
	CT 03 31 11 CE 9 28 s GMT 03 40 39	ZT 11 41 ZD - 8 GMT 03 41		11-Dec		CT 10 07 02 CE 9 05 s GMT 22 16 07	ZT 11 16 ZD + 11 GMT 22 16	2-Aug	2-Aug
	GHA ~ 225°	Dec. ~S 23°				GHA ~ 150°	Dec. ~N 20°		