

## INTRODUCTION

For each combination of arguments are given the tabulated (or computed) altitude ( $H_c$ ), the difference,  $d$ , between  $H_c$  and that for the next higher declination, and the azimuth angle,  $Z$ . Rules are given on each page for converting azimuth angle,  $Z$ , into azimuth,  $Z_n$ .

### USE OF THE TABLES

The GHA and declination of the observed body are taken in the usual way from the *Air Almanac* for the actual time (GMT) of observation. The GHA is combined with an assumed longitude, close to the DR longitude, to make the LHA a whole degree, or an even degree for latitudes above  $69^\circ$ . The tables are first entered with the whole degree of latitude, nearest to the DR latitude, and the appropriate declination group; in this sub-section, they are then entered with the degree of declination numerically less than that of the body observed, and with the value of LHA found above, taking particular care to choose the portion of the table corresponding to the same or contrary name, as appropriate.

The tables give directly the tabulated altitude,  $H_c$ , the difference,  $d$ , and the azimuth angle,  $Z$ , for the whole degree of declination chosen. The altitude must be interpolated to the true declination by means of Table 5, on page 248 or the bookmark, applying to it the correct proportion of  $d$ , with the sign given (added if +, subtracted if -); the azimuth angle,  $Z$ , must be converted to azimuth,  $Z_n$ , by the rules given on each page, but, in general, need not be interpolated for declination. For zenith distances greater than  $90^\circ$ , negative altitudes are tabulated; the correction from Table 5 must thus be applied algebraically. In all cases it is recommended that values in neighbouring columns be inspected to see whether the altitude increases or decreases with declination.

The intercept is found in the usual way by comparing the corrected sextant altitude ( $H_o$ ) with the tabulated altitude, interpolated to the actual declination as above:

*towards* the body if the observed altitude is *greater* than the tabulated altitude;  
*away* from the body if the observed altitude is *less* than the tabulated altitude.

The sextant reading must be corrected for instrument error, dome refraction, (if applicable), refraction (from Table 6) and parallax (for the Moon), before being compared with the tabulated altitude. The sight is plotted from the assumed position, defined by the whole degree of latitude and the assumed longitude. This assumed position may previously be adjusted for the effect of Coriolis acceleration (see Table 7) and advanced or retarded to another time; alternatively these corrections may be made to the position line or, in the case of corrections from Table 7, to the fix. The application of these corrections is considered separately below.

*Example.* On 1978 January 1, in DR position S  $23^\circ 42'$ , E  $113^\circ 25'$ , at height 37 000 ft., an observation of the Moon is obtained with a bubble sextant at GMT  $00^h 53^m 45^s$ ; the sextant reading is  $31^\circ 29'$  and the correction for instrument error and dome refraction is  $-5'$ .

From the <i>Air Almanac</i> ,	GMT	GHA	Dec.	Sextant altitude	° ' "
	h m s	° ' "	° ' "		
AM page for Jan. 1, Moon at	00 50 00	300 08	N 1 29	Instrument error, etc.	-5
flap, Moon, increment for	3 45	0 54		Parallax in altitude (P. in A.)	+48
Sum = GHA Moon at	00 53 45	301 02		Refraction (Table 6)	0
Assumed longitude, added because east		+112 58		Corrected sextant altitude ( $H_o$ )	32 12
Sum = LHA Moon (less $360^\circ$ if necessary)		54			