

A NEW TIME AND AZIMUTH TABLE

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The author based a new Time and Azimuth table on the splitting up of the spherical triangle into two right-angled triangles by a great Circle starting from the heavenly body and being perpendicular to the local meridian. The azimuth is given by the formula

$$\cot Az = \cos (\varphi + U) \tan P$$

whose auxiliary quantities U and P are calculated by means of the formulae :

$$\tan U = \cos t \cot \delta, \quad \cos P = \sin t \cos \delta$$

for values of δ from degree to degree, as well as for some remarkable stars or the pole star, also for values of the hour angle for every 4 minutes.

These quantities are given in tables 1a and 1b. Table 2 then gives values of P, for values of $\varphi + U$ and Az from degree to degree. A ten page-booklet contains all results required for interpolating with observation data. Many subsidiary problems may also be solved by observing that P is the distance from the heavenly body to the point East or West and becomes its amplitude at the moment of its true rising or setting, while U is then equal to latitude or its supplement.

Similarly, when the heavenly body is in the first vertical, P is the altitude of the heavenly body and U is equal to $90^\circ - \varphi$. By permuting φ and δ , the table also gives the altitude and hour angle for the greatest elongation ; lastly, if the latitude of the observer, the altitude and azimuth of an unknown star are known, the table permits the determination of its hour angle, its declination and consequently its name.

Some examples give the solutions of these various problems.

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