

ANNEX IIICOMPUTATION OF DISTANCE AND AZIMUTH1. Computation of Distance

The distance between reference points is considered to be the length of the hypotenuse of a right angle triangle, one side of which is the difference in latitude of the reference points and the other side the difference in longitude of the two reference points, and shall be computed as follows:

- 1.1 Convert latitude and longitude into degrees and decimal parts of a degree. Determine the middle latitude of the two reference points (average the latitudes of the two points).
- $$LATM = \frac{LAT1 + LAT2}{2}$$
- 1.2 Determine the number of kilometres per degree of latitude difference for the determined middle latitude.
- $$LATK = 111.108 - .566 \cos (2 LATM)$$
- 1.3 Determine the number of kilometres per degree of longitude difference for the determined middle latitude.
- $$LONGK = 111.391 \cos (LATM) - .095 \cos (3 LATM)$$
- 1.4 Determine the North-South distance in kilometres.
- $$LAT = LATK (LAT1 - LAT2)$$
- 1.5 Determine the East-West distance in kilometres.
- $$LONG = LONGK (LONG1 - LONG2)$$
- 1.6 Determine the distance between the reference points by the square root of the sum of the squares of the distance obtained.
- $$DIST = (LAT^2 + LONG^2)^{1/2}$$