

# Micropath<sup>®</sup> Corporation

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Download DAZEL: [www.micropath.com/downloads/software/Dazel](http://www.micropath.com/downloads/software/Dazel)

## Distance – Azimuth – Elevation DAZEL

The DAZEL application will compute the distance – azimuth (True North and Magnetic North) and the elevation (feet / meters) for geographic latitude / longitude coordinates that may be entered in Degrees, Degrees Minutes, and Degrees Minutes Seconds.

If two sets of coordinates are entered (Site A and Site B), the path distance and azimuths (True North and Magnetic North) and ground elevations (AMSL) are calculated. The Magnetic North azimuth calculation and the return of Site A and Site B ground elevations require an internet connection be available for the USGS Elevation Query Service or the USGS NED 1-arc second (NED1) and/or the NASA/JPL SRTM 3-arc second elevation data (SRTM3) be available on your computer's hard disk drive.

Elevation data may be downloaded without a fee or charge from the USGS Seamless Data Server at <http://seamless.usgs.gov/index.php>. Use the Micropath NED Extractor program and follow the detailed directions in the NED Extractor Help file to download NED1 / SRTM3 elevation data from the USGS Seamless Data Server.

The NED elevation data used with DAZEL **MUST** be in the "BIL\_INT16" file format. Do not download the ArcGrid, GeoTiff or GridFloat file formats. DAZEL does not recognize these file types.

NED elevation data obtained from USGS must be renamed to the Micropath NED file name convention. The NED Extractor program will transparently accomplish all this for you. Once the elevation data has been extracted from the zip file and renamed, you will need to copy the elevation data files to the \_ElevData/NED1 or the \_ElevData/SRTM3 folders and placed the files into their corresponding latitude subfolders. For example: ../Micropath/Dazel/\_ElevData/NED1/39.

For testing purposes, use the latitude / longitude coordinates in the picture below. The SRTM3 elevation data file N39W105.hgt that is required for this test path is included with the installation of DAZEL.

The screenshot shows the Micropath DAZEL application window. The interface is divided into two main sections: 'Coordinates' and 'Distance - Azimuth - Elevation'.

**Coordinates Section:**

- Site A - Deg Min Sec:** Latitude: 39:30:00.0000 (N), Longitude: 104:30:00.0000 (W).
- Site B - Deg Min Sec:** Latitude: 39:45:00.0000 (N), Longitude: 104:45:00.0000 (W).
- Select Format:** Radio buttons for 'Deg Min Sec' (selected), 'Deg Min', and 'Degrees'. A 'Reset' button is also present.

**Distance - Azimuth - Elevation Section:**

- Path Distance:** 21.80 Miles, 35.09 Km.
- Azimuth - True North:** Site A - Site B: 322.36; Site B - Site A: 142.20.
- Azimuth - Magnetic North:** Site A - Site B: 330.61; Site B - Site A: 150.60.
- Elevation - Feet / Meters - USGS:** 6208.01 / 1892.11; 5516.02 / 1681.20.
- Datum:** Radio buttons for 'NAD83' (selected) and 'NAD27'.

Three arrows point to specific elements: a black arrow points to the Site A coordinates, another black arrow points to the Site B coordinates, and a red arrow points to the 'Deg Min Sec' radio button in the 'Select Format' section.

## Elevations

Elevations are processed in the following order:

1. The USGS HTTP Elevation Query will be utilized if an internet connection is available and the Options / Enable Internet Elevation Query is checked. The HTTP query to USGS is set to request the returned elevation be extracted from the best available data source.
2. If NED1 elevation is present for the entered coordinates, an interpolated elevation will be calculated. (USGS Elevation Query not available or enabled).
3. If NED1 elevation data is not present, then SRTM3 data will be processed (if available) for the entered coordinates. An interpolated elevation will be calculated.

Note: Micropath has no information on how USGS derives an elevation from their databases. It is unknown if the elevation is the nearest point to the coordinate or if an interpolation process is employed.

You may see differences when comparing elevations between DAZEL and other applications. This can occur if a different elevation database is used as well as the interpolation process and the elevation point extraction from the database.

The source of the elevations will appear as shown in the above picture, i.e., USGS, NED1, or SRTM3.

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