



## How to Georeference:

- [Georeferencing Calculator](#) and [Desktop version of the Calculator for offline usage.](#)
- [Guide to Best Practices for Georeferencing](#)
- [MaNIS/HerpNET/ORNIS Georeferencing Guidelines](#)
- [Georeferencing for Dummies](#) and [Georeferenciación para Dummies](#)
- [Wieczorek et al., 2004.](#) Point-radius method for georeferencing locality descriptions and calculating associated uncertainty. International Journal of Geographical Information Science 18(8):745-767.
- [Kristina's Quick and Dirty Georeferencing Guide](#) and [Guía de Kristina Georreferenciando Rápido y Sucio.](#)
- Good and Bad Localities - [in Spanish](#) and [in English](#)
- How to Use Paper Maps - [in Spanish](#) and [in English](#)
- [Manual Para el Uso de la Calculadora](#) and [Manual for Georeferencing Calculator](#)
- [Geographer's Craft](#)-Information about geography, mapping, etc, in general. Has definitions for many terms.
- [Statoids](#)- Gives geographic and administrative divisions, and a lot of historical information for countries.
- [Introduction to Spatial Coordinate Systems and Maps](#) from Microsoft.

## Georeferencing & GIS Tools:

- [BioGeomancer](#) and [BioGeomancer Workbench](#) and [BioGeomancer Frequently Asked Questions for the Georeferencing Survey](#), and [Biogeomancer for Dummies for the Georeferencing Survey](#). WGS84 datum, precision is exact, calculates uncertainty using MaNIS/HerpNET/ORNIS Guidelines.
- [GEOLocate](#)-Great for finding road or river intersections, includes data for the world - WGS84 datum. Includes downloadable desktop application and collaborative georeferencing applications. Coordinate precision is exact.
- [MVZ GIS Portal](#) - links to multiple datasets, basics of GIS and modeling, and the latest Georeferencing tools that are being used at the Museum of Vertebrate Zoology, UC Berkeley.
- [On-screen Ruler](#) - Use with BioGeomancer or other sites without measuring tools.

- [GabrielOrtiz.com](#) - Click on the Calculadora Geodésica Link on the left side to view the coordinate translator. Use this site for translating between datums and between coordinate systems (e.g., decimal degrees to UTM).
- [Google Maps](#) and [Google Earth](#)- For looking at urban areas, making extents, and fun to use for 3-D action. WGS84 datum. Use as gazetteer on Error Calculator. See discussion at [listserv](#) for more info.
- [Canadensys bookmarklet](#) for showing coordinates in [Google Maps](#).
- [DIVA-GIS](#)- Free GIS Software, especially good for ecological niche modeling or verification of georeferencing. The website includes a tutorial, manual also available in Spanish, and a good "Free Data" section for basic layers. Has the GADM world boundary layers and Global Climate layers.
- [Berkeley Mapper](#)
- Comparisons among [GIS systems on Wikipedia](#).
- [uDIG](#)
- [gvSIG](#)
- [ESRI-GIS](#) and Mapping Software products, which include ArcView and ArcMap.
- [GRASS](#)
- [Quantum GIS](#) - used on Macs, Linux, Windows, and Unix Operating Systems.
- [GIS Resources for Macs](#)
- [ArcVoyager Special Edition for Macs](#) - ArcView Lite for Macs and [Utility to import .e00 files into ArcVoyager](#).
- [CAS Automated Georeferencing Tool](#) for Use with ArcView/ArcGIS applications.
- [Township-Range-Section \(TRS\) Tool](#) for Google Earth.
- Changing Datums for Coordinates : [Jeep Coordinate site](#)
- Transferring from [NAD27 to NAD83 datums](#)
- Transferring [UTM \(Universal Transverse Mercator\) to Lat/Long Converter](#) - Datum WGS84. Used all over the world. Use this as exact coordinates for precision and extent of 30 m in the error calculator.  
To obtain the zone for [UTM](#)
- [TatukGIS Converters](#) - For converting many coordinates and different datums and [TatukGIS Aerial Imagery Corrector](#)
- Graphical Locator [TRS Data](#)-Useful for western US states that contain TRS (township range section) information (usually shows as something like T23N, R15E, sec5.) Use this as a gazetteer with 0.0001 precision in the error calculator. NAD83 datum.
- **Tools for Species Ecological Niche Modeling:**  
[Bioclim and Domain \(Use DIVA-GIS\)](#)  
[Maxent](#)  
[Desktop GARP - Genetic Algorithm for Rule-Set Production](#).

## Georeferencing and GIS Data Sources:

### Gazetteers:

- [Acme Mapper](#). For looking for and locating addresses, place names, natural features and road names around the world. Includes maps of terrain, topographic and satellite images. Can be used as a replacement for Topozone. Datum WGS84, coordinate precision is exact.
- [Getty Thesaurus of Geographic Names](#)- Datum WGS84, not derived from NIMA data, do not use for coordinates but for looking at old names / name changes.
- [GeoNames](#) - For locating global postal codes, largest cities, capitals, highest mountains and other information for the world.

- NIMA [GEOnet Names Server](#) (GNS) - The base information for many gazetteers, all of which use a slightly different display. Most useful for narrowing down the available results by administrative levels. Datum WGS84. Precision to the nearest minute (when second=59 seconds, round up to the next minute), except for US-based localities and a few other areas/cities, for which it's to the nearest second. Original coordinate system= DMS. Can download all data for entire country for GIS applications.
- [FuzzyG](#) - FuzzyG - The Fuzzy Gazetteer - enables you to find geographic features even when you do not know their exact names. Returns a list of similar names. Datum is WGS84 and precision to nearest minute. Original coordinate system Degrees, Minutes, Seconds (DMS). Based on NIMA GeoNET names server data.
- [Falling Rain](#)- gazetteer site that gives foreign localities and distances in nautical miles to nearest place names (formerly Calle.com) - WGS84. Data based on NIMA so precision usually to the nearest minute (when second=59 degrees, round up to the next degree). Original coordinate system= DMS.
- [Maporama](#)-For finding Coordinates for Street Addresses anywhere in the world. Write to them to find datum for map you are using.Coordinate precision to the nearest minute.
- [Mappy Road Guide](#) - for finding or mapping localities in Europe (18 countries). Especially good for roads and street addresses. Does not give coordinates.
- [MultiMap](#) - for finding or mapping localities in Europe, US and Australia. Gives coordinates, datum unknown (at present).
- [Gazetteers of the World and Beyond](#) - National Library of Australia.
- [Canadian Geographic Names](#) -Canadian gazetteer - includes a rough map for each locality. Datum NAD27. Precision to the nearest minute (when second=59 seconds, round up to the next minute). Original coordinate system= DMS.
- [A searchable gazetteer of Quebec locations](#). Uses Degrees, Minutes and Seconds and the most up to date Higher Geography for the province. Has a map that can be zoomed. Try Anticosti or Montréal or Just Montreal and then try the Afficher la recherche avancée in top right third of page for advanced search options. In the active links at the top you can read about the site in English French and Spanish with instructions on how to use the search on the site.

## Sources for World Data:

- [Acme Mapper](#). For looking for and locating addresses, place names, natural features and road names around the world. Includes maps of terrain, topographic and satellite images. Can be used as a replacement for Topozone. Datum WGS84.
- [Digital Chart of the World](#)- Free downloadable layers for the world. Note that the data is only valid as of 1991/1992. These same datasets plus administrative boundaries are also available at the [DIVA-GIS and BioGeomancer gdata site](#).
- [CIA World Factbook](#) - Useful for information about current political boundaries, and will give you rough coordinates for the center of countries.
- [GIS Data Depot](#)- Downloadable country maps from many sources on one site.
- UT Austin [Perry-Castaneda Map Library](#)-Great resource for scanned and online maps.
- [Global Climate Data for Free](#) plus country data & other great stuff from DIVA-GIS.
- [Color Satellite Imagery for Free from NASA](#) and the Applied Science Directorate.
- [USGS National Atlas](#) -for the world. Opens seamless server for downloading free GIS data.
- [USGS Global GIS](#)- A Digital Atlas of the Planet Earth. From either 1995 or 2000. Provides 1:1 million scale maps in GIS format. Can be used with ArcView (ArcVIEW not required as comes with viewer). WGS84 datum, coordinate precision to 2 decimal places.Available at libraries or can be purchased online for \$30 a CD. Provides global coverages of elevation, landcover, seismicity, and resources of minerals and energy.

- [Online Uruguay Maps](#).
- [Canadian Centre for Topographic Information](#) - topographic maps of Canada, 1:50,000 and 1:100,000. WGS84 datum.
- [Ontario Maps, Canada](#) - With this mapping service a user can add layers as required in the left column, then zoom, measure a distance, center a map, get info (coordinates, DMS) etc., and then mail the active map to a user as a PDF. A user on the web page has to refresh the map to use the selected layers. It is better to view it as large-based on the scale on the top right in the map window.
- [New Zealand's official gazetteer of Geographical Names](#). The New Zealand Gazetteer of Official Geographic Names (the Gazetteer) is published by the New Zealand Geographic Board Ngā Pou Taunaha o Aotearoa (NZGB). The Gazetteer contains all official names for features within the NZGB's jurisdiction.
- [Coordinate Tools from the Loumus project for Finland](#).
- [PDF of the Northwest Territories, Canada](#). This has a legend that you can turn on and off for multiple layers. This is useful for locating old Hudson Bay Company posts.
- [GBIF](#) -Global Biodiversity Information Facility.
- [Global Topographic Data-DEMs](#).Free GIS layers. Downloaded layers may need conversion.

A related document to this site is: [Converting GTOPO DEM's to ArcView Format](#).

- [speciesLink](#) - to help biological collections with georeferenced data. By entering geographic coordinates the tool returns information about the point, such as the name of the country, state or administrative region, and the name of the municipality or district. If the point is in the sea, the tool will calculate the distance to the closest coast, indicating the name of the country. Information is obtained from [.](#)

## **Sources for US Data:**

- [Acme Mapper](#). For looking for and locating addresses, place names, natural features and road names around the world. Includes maps of terrain, topographic and satellite images. Can be used as a replacement for Topozone. Datum WGS84.
- USGS [Geographic Names Information System](#) (GNIS) US-based gazetteer. Datum NAD27 before Sept 2005. Since Sept 2005 NAD83. Precision to the nearest second.
- [MapTech Terrain Navigator](#) (\$99 a state, good for georeferencing the US)- Default Datum is NAD27, coordinate precision is exact, map type is 1:24,000 or 1:100,000. Also recommend Terrain Navigator PRO - has street names and addresses, plus other features.
- [Topo!](#)- similar to Terrain Navigator, use this in calculator as USGS map, NAD 27 or NAD83 (see which one your map is set to), with exact precision. Works with both PC and MACs (unlike Terrain Navigator, but overall TN is easier for searching).
- [Delorme Atlas and Gazetteer](#)-for the United States. Large paper maps, good to use in conjunction with electronic maps. Has road names. Use as USGS 1:150,000, 250,000, etc (see bottom of map for scale). You have to compute your precision by how close you can measure it too (say 1 mm) and convert that to degrees for that scale. Grids are WGS84 datum,original coordinate system degrees, minute, seconds.
- [US National Maps](#)-for the United States. Great for finding streets and features names, has good searching capabilities, can save bookmarks and has a distance tool. Highly recommended. Coordinate precision to the nearest second, datum is reported on the left hand side.
- [MapQuest](#) - for finding or mapping localities, for finding street addresses in the US. Use this [link](#) to map coordinates using MapQuest. Datum is WGS84 (NAD83).

- [USPS Post Office Locator](#)-Useful for addresses of post offices, although be wary, as post offices may have moved. Another resource, such as Google Earth, will be needed to locate the coordinates.
- [Terra Server](#)-for the US. Allows you to switch between topo maps and aerial photos for various regions in the United States, and gives the date of the aerial photos. Good for measuring extents and can give you coordinates.
- [US Census State & County Maps](#)-Good for political boundary outline maps of the states and counties for reference, but not useful for obtaining coordinates or extents.
- [National Biological Information Infrastructure](#) - NBII, our US representative to GBIF.
- UT Austin [Perry-Castaneda Map Library](#)-Great resource for scanned and online maps, especially for National Parks of the United States.
- [TNRIS](#) or [Texas State Demographer](#) - For Texas Maps.
- [USGS NED Shaded Relief Imagery](#)-Free 1:24,000 USGS images that show shaded reliefs.
- [TIGER/Line Census Maps](#)-Free US county layers.
- [University of Colorado GIS Maps](#) - for Colorado.
- [Colorado Geological Survey](#)- GIS maps.
- Data for California: [California Spatial Information Library](#) and [California FRAP Data](#) - Free Habitat and Vegetation Data.
- Historical USGS Maps of Eastern US States- PA, NJ, OH, NY, ME, DE, NH, RI,VT,WV , MZ, MS, CT [Free from MapTech](#).

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### Georeferencing Archives:

**A good resource for any georeferencing questions you may have is the archive of messages sent to the MaNIS and HerpNet email lists.**

1. [MaNIS](#) archives. These are both available for **anyone** to search.
2. [HerpNet](#) archives.

[ORNIS Home](#) | [MaNIS Home](#) | [HerpNet Home](#) | [Data Portal](#) | [Documents](#) | [Participants](#) | [Gazetteer](#) | [Join HerpNet](#)

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If you have suggestions for other websites, contact [Carol Spencer](#).

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