

chicago manual of style referencing gis data

Navigating the Nuances: Chicago Manual of Style Referencing GIS Data

chicago manual of style referencing gis data presents a unique challenge for scholars, researchers, and data practitioners. While the Chicago Manual of Style (CMOS) is renowned for its comprehensive guidance on academic writing and citation, its specific directives for citing Geographic Information System (GIS) data are not always explicitly detailed. This article delves into the intricacies of properly documenting GIS datasets within the framework of Chicago style, ensuring accuracy, transparency, and academic integrity. We will explore how to adapt CMOS principles to the specific characteristics of GIS data, including spatial components, metadata, and digital formats, providing clear strategies for both notes and bibliography entries. Understanding these guidelines is crucial for any work that incorporates spatial analysis, mapping, or geographic datasets.

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Understanding the Core Principles of Chicago Style Citation

The Chicago Manual of Style emphasizes providing readers with enough information to locate the source material independently. This fundamental principle remains paramount when citing any type of information, including complex digital resources like GIS data. Chicago style offers two primary citation systems: the notes-and-bibliography system and the author-date system. For academic papers, theses, and dissertations, the notes-and-bibliography system is often preferred, especially in fields like history and the humanities. This system uses superscript notes within the text to refer to detailed citations in a bibliography at the end of the work. The core idea is to keep the main text uncluttered while still providing complete source information.

When adapting Chicago style for GIS data, it's essential to consider what information is critical for reproducibility and verification. This includes the creator or publisher of the data, the title of the dataset, the version or release date, and most importantly, the method of access or location of the data. The Chicago style's flexibility allows for the adaptation of its general principles to new and evolving forms of information. The goal is always clarity and traceability, enabling your audience to understand the origins of the geographic information you present.

Identifying Key Components of GIS Data for Citation

Properly citing GIS data requires a thorough understanding of its constituent parts. Unlike a simple text document, GIS data is multi-faceted and often comprises several interconnected elements. Identifying these components is the first step in constructing an accurate citation. This involves distinguishing between the raw data itself, the associated metadata, and any derived products like maps or analyses.

Key components to consider when documenting GIS data include:

- **Data Source/Creator:** Who produced or compiled the data? This could be a government agency, a research institution, a private company, or an individual researcher.
- **Dataset Title:** The official or descriptive name given to the dataset.
- **Version/Date:** The specific version of the dataset used or the date it was created or last updated.
- **Format:** The file format of the data (e.g., shapefile, GeoTIFF, geodatabase).
- **Publisher/Distributor:** The entity from which the data was obtained (e.g., a data repository, a website).
- **Access Information:** The URL or physical location where the data can be found or accessed.
- **Metadata:** Descriptive information about the data, including its spatial resolution, projection, accuracy, and intended use.
- **Date of Access:** The date on which the data was downloaded or accessed.

Referencing GIS Data in Notes-Style Citations

The notes-and-bibliography system requires detailed citations in numbered endnotes or footnotes. When referencing GIS data, the goal is to provide sufficient information for your readers to identify and potentially retrieve the exact dataset you utilized. This often involves adapting general Chicago style guidelines for digital resources.

Primary Source GIS Datasets

For primary source GIS datasets, such as raw data downloaded from a government agency or research institution, the note should clearly identify the data's origin. Begin by stating the creator, followed by the dataset's title. Include the version number or creation date and the publisher or distributor. Crucially, provide the URL where the data was accessed and the date of access. For example, a note might look like: "U.S. Census Bureau, Tiger/Line Shapefiles, 2022, accessed June 15, 2023, <https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>."

Derived GIS Datasets and Analyses

When you have created a new dataset by processing, analyzing, or modifying an existing GIS dataset, your citation should reflect this transformation. In the note, you would typically cite the original source data first, and then describe your own contribution or the analysis performed. This ensures proper attribution to the original data providers while acknowledging your work. For instance, if you created a choropleth map based on census data, you might cite the census data and then mention that you used it for a specific analysis.

Web-Based GIS Resources and Interactive Maps

Citing interactive web-based GIS resources, such as Google Maps, Esri's ArcGIS Online services, or specific web mapping applications, requires a slightly different approach. The note should identify the platform or service, the specific map or layer being referenced, and the URL. If the map is dynamic and can be altered by the user, it's important to specify the date of access, as the content may change. For example: "Esri, 'World Population Cartograms,' accessed June 15, 2023, <https://www.arcgis.com/apps/instant/media/index.html?appid=a2b144d937734056b4a372883b9383f1>."

Constructing Bibliography Entries for GIS Data

The bibliography provides a comprehensive list of all sources cited in your work. Entries for GIS data should be structured to be as informative as possible, following the general principles of Chicago style for bibliographical entries. The key is consistency and completeness.

Cataloging Original GIS Datasets

When cataloging original GIS datasets in the bibliography, follow a similar structure to the notes, but with a slightly more formal arrangement. List the creator or author first, followed by the title of the dataset in italics. Include the version number or creation date, the publisher or distributor, and the URL. The date of access is also important here. For example: "U.S. Census Bureau. *Tiger/Line Shapefiles*. 2022. Accessed June 15, 2023.

<https://www.census.gov/geographies/mapping-files/time-series/geo/tiger-line-file.html>."

Documenting GIS Analyses and Products

For bibliography entries related to your own GIS analyses or products, you would typically cite the original source data as a separate entry and then describe your own work. If your analysis has been published, the bibliography entry would refer to that publication. If it's an unpublished analysis that you've created for the purpose of your research, you might include a description of the data and the tools used, along with the original source data citation.

Citing Online GIS Platforms and Services

Bibliography entries for online GIS platforms should identify the provider and the specific service or map used. The title should be descriptive, and the URL should be provided. Similar to notes, including the date of access is crucial for dynamic online content. For instance: "Esri. 'World Population Cartograms.' Accessed June 15, 2023.

<https://www.arcgis.com/apps/instant/media/index.html?appid=a2b144d937734056b4a372883b9383f1>." The full name of the platform or service should be used where possible.

Handling Metadata and Data Provenance

Metadata is the data about data, and in GIS, it is critically important for understanding the context, quality, and limitations of a dataset. Chicago style, while not having explicit sections on GIS metadata, strongly advocates for transparency and thorough documentation. Therefore, citing metadata, or at least acknowledging its existence and importance, is an integral part of referencing GIS data.

When citing GIS data, it is good practice to include a reference to its metadata if it is readily available. This might be a separate file or an online resource. In a note or bibliography entry, you can indicate that metadata was consulted. For example, you might add a phrase like "Metadata consulted" or provide a direct link to the metadata document if it's hosted separately. This demonstrates due diligence and allows others to assess the data's reliability and suitability for their own purposes. Proper provenance, the history of ownership and origin, is key to academic credibility.

Special Considerations for GIS Data Citation

The unique nature of GIS data necessitates addressing specific challenges and providing clear documentation for various scenarios. Adhering to these considerations ensures that your citations are accurate and helpful to your readers.

Proprietary and Licensed Data

When using proprietary or licensed GIS data, such as data from commercial providers or datasets with restrictive use agreements, it is essential to adhere to the terms of the license. Your citation should reflect any specific attribution requirements mandated by the data provider. This might involve including specific copyright notices or acknowledgment statements in addition to the standard citation information. If access requires a subscription or specific login, this information may also need to be noted, though full access details are generally not required in public-facing academic work.

Spatial Reference Systems and Projections

The spatial reference system (SRS) and projection of a GIS dataset are fundamental to its interpretation and use. While not always explicitly included in a standard citation, for technical or academic papers where spatial accuracy is paramount, mentioning the SRS and projection can be beneficial. This information is usually found within the dataset's metadata. For example, you might note that the data is in "WGS 84 (EPSG:4326)" or a specific state plane coordinate system. This level of detail aids in understanding potential spatial discrepancies if data from different sources are combined.

Visualizations and Maps Derived from GIS Data

When you create maps or other visualizations from GIS data, you are presenting a form of derivative work. In your notes and bibliography, you should clearly distinguish between the original data source and your own cartographic product. If the map is included within your publication, it should have its own caption and potentially a source line indicating the data used. If you are referencing an online map or a map created by another author, cite it as you would any other published graphic, providing details about its creator, title, and source of data.

Common Pitfalls and Best Practices

Navigating the citation of GIS data can be complex, and several common pitfalls can be avoided with careful attention. The primary goal is always to ensure clarity and replicability for your readers. One frequent error is failing to distinguish between different versions of a dataset, which can lead to

confusion if the data has been updated or modified. Another common issue is neglecting to provide the date of access for online resources, which can become outdated or unavailable.

Best practices include:

- **Be specific:** Always try to cite the most specific version or iteration of the data you used.
- **Attribute clearly:** Ensure all original data creators are properly acknowledged.
- **Document access:** Always include the URL and date of access for online data.
- **Consult metadata:** Utilize metadata to understand and describe the data's characteristics.
- **Maintain consistency:** Apply Chicago style principles consistently across all your GIS data citations.
- **Cite derived products separately:** If you've created maps or new datasets, ensure they are clearly identified as your work based on original sources.

By following these guidelines, you can ensure that your Chicago manual of style referencing of GIS data is both compliant and contributes to the transparent and reproducible nature of your research.

FAQ

Q: What is the most critical piece of information to include when citing GIS data in Chicago style?

A: The most critical piece of information is the source or creator of the data, followed by the specific dataset title and where or how it was accessed (e.g., URL and date of access). This ensures readers can identify and potentially locate the data themselves.

Q: How should I cite a shapefile downloaded from a government website?

A: You should cite it by listing the government agency as the author, the specific name of the shapefile or dataset, the year of release or update, and the URL where it was accessed, along with the date you accessed it.

Q: Is it necessary to include the file format (e.g., .shp, GeoTIFF) in a Chicago style citation for GIS data?

A: While not always explicitly required by Chicago style for all digital resources, including the file format can be highly beneficial for GIS data. It helps readers understand the nature of the data they are looking for and can be included as descriptive information.

Q: What if the GIS data I'm using is proprietary and requires a license?

A: When using proprietary data, you must adhere to the terms of its license agreement. Your citation should include any specific attribution or copyright information mandated by the data provider. This might involve adding a specific copyright notice to your citation.

Q: How do I cite an interactive web map, like one from Google Maps, in Chicago style?

A: For interactive web maps, cite the platform or company as the author, the title of the specific map or service, and the URL. It is crucial to include the date of access because interactive maps can be updated frequently, and their content can change.

Q: Should I mention the spatial reference system (SRS) or projection in my citation?

A: Mentioning the SRS or projection is not always mandatory but is highly recommended for technical papers where spatial accuracy and reproducibility are paramount. This information is typically found in the dataset's metadata and can be included as descriptive detail.

Q: If I modify or analyze existing GIS data to create a new dataset, how do I cite both?

A: You should cite the original source data thoroughly. Then, in your notes or bibliography, you would describe your own modification or analysis, clearly indicating that it is derived from the cited original source. This ensures proper attribution to both the original data creators and your own work.

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