

chicago manual of style geographic data analysis citation examples

Navigating Citations: Chicago Manual of Style Geographic Data Analysis Citation Examples

chicago manual of style geographic data analysis citation examples are crucial for academic and professional integrity when working with spatial information. Accurately attributing the source of geographic data, whether it's from a government agency, a research institution, or an online repository, ensures proper acknowledgment and allows readers to verify your findings. This comprehensive guide delves into the intricacies of citing geographic data according to the Chicago Manual of Style (CMOS), providing clear examples for various types of spatial resources. We will explore the fundamental principles of CMOS citation for geographic data, discuss specific formats for datasets, maps, and geospatial software, and offer practical advice for ensuring accuracy and consistency in your bibliographies. Mastering these citation practices is essential for anyone conducting research that relies on geographic information systems (GIS) and spatial analysis.

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Understanding Chicago Style for Geographic Data

The Chicago Manual of Style, a widely respected authority on stylistic and editorial practices, provides guidelines that extend to the citation of various forms of information, including geographic data. While CMOS doesn't have a single, exhaustive chapter dedicated solely to geospatial citations, its general principles for citing electronic resources, books, and other published materials can be adapted. The core idea is to provide enough information for the reader to locate the source, ensuring transparency and verifiability in your research. When dealing with geographic data analysis, this means clearly identifying the data's origin, its specific characteristics, and how you accessed it.

The flexibility of CMOS allows for the adaptation of its existing rules to new and evolving forms of information, such as the vast amounts of digital geographic data now available. Researchers must understand how to apply the principles of author, title, publication information, and access details to the unique context of spatial data. This often involves deciphering metadata, understanding data licensing, and accurately describing the format

and extent of the data used in an analysis.

Core Principles of Geographic Data Citation

Regardless of the specific type of geographic data, several core principles underpin effective citation in Chicago style. These principles ensure that your citations are informative and actionable. The goal is always to enable a reader to find the exact data you used, including its version, date of creation or last update, and the entity responsible for its creation or distribution.

The essential components of a geographic data citation typically include:

- The creator or author of the data (often an organization or government agency).
- The title of the dataset or map.
- The publication date or the date of the data's creation/last update.
- The publisher or distributor of the data.
- A version number or identifier, if applicable.
- A URL or persistent identifier (like a DOI) for online access.
- The date you accessed the data, especially if it's dynamic or subject to change.

Understanding these elements is the first step in constructing accurate citations for your geographic data analysis.

Citing Geospatial Datasets

Geospatial datasets are the backbone of much geographic data analysis. These can range from demographic statistics linked to census tracts to remotely sensed imagery and elevation models. Citing these datasets requires attention to their specific attributes.

Citing Datasets from Government Agencies

Many valuable geographic datasets are produced by government agencies at federal, state, or local levels. These are often considered the "author" of the data.

For example, citing a dataset from the U.S. Census Bureau:

U.S. Census Bureau. "TIGER/Line Shapefiles, 2022 National." Last modified October 15, 2022.

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

In this example, the agency is the author, the shapefile name is the title, the modification date serves as the publication/update information, and the URL provides access. The "Last modified" date is particularly important for time-sensitive data.

Citing Datasets from Research Institutions or Organizations

Research institutions and non-governmental organizations also create and distribute significant geographic datasets. The principles are similar to citing government data, focusing on identifying the responsible entity and the dataset itself.

Example citing a dataset from a university research center:

WorldPop Project. "Global Gridded Population of Human Settlements, 2020." Accessed November 10, 2023. <https://www.worldpop.org/geodata/summary?id=85866>.

Here, "WorldPop Project" is the creator, "Global Gridded Population of Human Settlements, 2020" is the title, and the access date is crucial because the data might be updated. The citation emphasizes the availability of the data via a specific web address.

Citing Datasets with Version Numbers

When datasets are updated or revised, they often receive version numbers. Including this information is vital for reproducibility.

Example citing a specific version of a climate dataset:

Oak Ridge National Laboratory, Environmental Sciences Division. "Daymet V4 Daily Surface Weather and Climatological Data on a 1-km Grid for North America, South America, and the Eastern Pacific Ocean, 1980-2017." Accessed October 28, 2023. <https://doi.org/10.3334/ORNLDAAC/1509>.

In this case, "Daymet V4" clearly indicates the version of the dataset being cited, alongside the responsible institution and a Digital Object Identifier (DOI) for precise referencing.

Citing Online Geographic Data Repositories

Many researchers access geographic data through online repositories, such as data portals or geoportals. When citing data obtained from these platforms, it's important to acknowledge both the original data creator and the repository through which it was accessed.

Example citing data from a clearinghouse:

Esri. "World Imagery Basemap." Accessed November 5, 2023.

https://basemaps.arcgisonline.com/arcgis/rest/services/World_Imagery/MapServer.

In this scenario, Esri is the creator of the basemap service. The citation includes the service name and the access date. If a specific download was made, the citation might be structured differently, potentially referencing a downloaded file rather than a live service.

For data downloaded from a curated collection, the repository might be treated more like a publisher:

National Oceanic and Atmospheric Administration (NOAA). "NOAA Climate at a Glance: U.S. Time Series." Accessed October 29, 2023.

<https://www.ncei.noaa.gov/products/us-climate-normals>.

This example highlights that the data originates from NOAA, but it was accessed through their "Climate at a Glance" product, serving as a specific entry point or identifier within the broader NOAA resource.

Citing Maps and Atlases

While digital data is increasingly prevalent, traditional maps and atlases remain important sources for geographic information. The citation format for these follows standard Chicago style for cartographic materials.

Citing Printed Maps

For a single printed map, the citation should include the cartographer (if known and significant), title, scale, publisher, and publication date.

Example of a printed map citation:

Smith, John. *Topographic Map of Yosemite Valley*. Scale 1:24,000. Yosemite National Park Press, 2019.

If no individual cartographer is credited, the publisher often becomes the primary identifier.

Citing Digital Maps or Map Services

Digital maps, including those accessed through web mapping services, require a citation that reflects their digital nature and accessibility.

Example of a digital map citation:

Google Maps. "Street View of Eiffel Tower, Paris." Accessed November 12, 2023.

<https://maps.google.com/?q=Eiffel+Tower,+Paris&ll=48.8584,2.2945&z=17&layer=c>.

This citation identifies the service, the specific feature or view being referenced, and the access details. The URL provides the direct link to the user's experience of the map.

Citing Atlases

Atlases are collections of maps and are cited more like books, with the title of the atlas being central.

Example of an atlas citation:

National Geographic Society. *National Geographic Concise Atlas of the World*. Washington, D.C.: National Geographic Society, 2018.

For citing a specific map within an atlas, you would list the map title first, then the atlas information, similar to citing a chapter in a book.

Citing Geospatial Software

The software used for geographic data analysis is as crucial to the research process as the data itself. Proper citation acknowledges the developers and versions of the tools employed, ensuring transparency in methodology.

Citing GIS Software

When specific analytical results depend on particular software functionalities or versions, citing the software is essential.

Example citing ArcGIS:

Esri. ArcGIS Pro. Version 3.1. Redlands, CA: Esri, 2023.

This format clearly indicates the developer, the software product name, its version, the location of the developer, and the year of release. This level of detail is important if the specific features or algorithms of a particular software version are critical to your analysis.

Citing Statistical or Programming Packages for Spatial Analysis

Many analyses utilize programming languages and statistical packages. When these are used for spatial operations, they should be cited.

Example citing R with a spatial package:

R Core Team. R: A Language and Environment for Statistical Computing. Vienna, Austria: R Foundation for Statistical Computing, 2023. Package `sf` version 1.0-15.
<https://CRAN.R-project.org/package=sf>.

This example cites the base R installation and then specifies the spatial package used, including its version and repository. This ensures that others can replicate the analytical environment precisely.

Common Challenges and Solutions in Geographic Data Citation

Citing geographic data can present unique challenges due to the dynamic nature of online resources, the complexity of metadata, and varying standards across data providers.

One common challenge is dealing with data that lacks clear authorship or publication dates. In such cases, Chicago style suggests citing what information is available, and in the absence of specific dates, using an "accessed" date becomes paramount. For datasets without a formal creator, one might attribute the data to the institution hosting it or to the name of the dataset itself if it's a widely recognized standard.

Another issue is the sheer volume and complexity of metadata associated with geospatial datasets. While not all metadata needs to be included in a citation, key identifiers such as the dataset's original name, its spatial and temporal extent, and its resolution can be valuable to include in the descriptive text accompanying the citation, if not directly within the bibliography entry itself.

Furthermore, understanding data licensing and terms of use can inform your citation. While CMOS doesn't dictate how to cite based on license, being aware of these terms can help you accurately describe your access and use of the data. If a particular license restricts use or requires attribution in a specific way, this should be considered.

The Importance of Consistency and Accuracy

Consistency and accuracy in citing geographic data are non-negotiable for scholarly integrity. Inaccurate or incomplete citations can mislead readers, hinder their ability to find the original data, and ultimately undermine the credibility of your research. Applying a consistent citation style throughout your work, whether it's the author-date system or notes and bibliography system, is crucial.

When in doubt about the best way to cite a particular piece of geographic data, always err on the side of providing more information. This includes the most specific version, the most precise date of creation or update, and the most direct link to the data or its descriptive documentation. Cross-referencing with other scholarly works that use similar data can also provide valuable insights into best practices for citation within your field.

Ultimately, robust geographic data citations demonstrate a commitment to transparent research practices. They allow others to engage with your work more fully, to verify your sources, and to build upon your findings. By diligently following these guidelines, you contribute to a more reliable and reproducible body of scholarly knowledge in the field of geographic data analysis.

FAQ

Q: What is the most important information to include when citing a geographic dataset in Chicago style?

A: The most crucial information includes the creator or author of the dataset (often an organization), the full title of the dataset, the version number (if applicable), the date of creation or last modification, the publisher or distributor, and a URL or persistent identifier (like a DOI) for access. The date of access is also important for online resources.

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

A: Treat the government agency as the author. Use the specific name of the shapefile as the title. Include the date of last modification or release provided by the agency, and a direct link to where it was downloaded. For example: U.S. Geological Survey. "National Hydrography Dataset, 2021." Last modified December 1, 2021. <https://nhd.usgs.gov/data.html>.

Q: What if the geographic data I used does not have a specific author listed?

A: If no individual or clear organizational author is listed, you can often use the name of the institution or organization that hosts or distributes the data as the author. If even that is unclear, you may start the citation with the title of the dataset itself, followed by other available information like the publisher and access date.

Q: How should I cite a web map service like Google Maps or ArcGIS Online?

A: Cite the service provider as the author (e.g., Google Maps, Esri). Use the name of the specific map or layer being referenced as the title. Include the URL and the date you accessed it. For example: Google Maps. "Satellite View of Manhattan, New York City." Accessed November 15, 2023. <https://maps.google.com/?q=Manhattan,+NYC&t=k>.

Q: Is it necessary to cite the version number of geospatial software?

A: Yes, it is highly recommended and often necessary, especially if the specific functionalities, algorithms, or outputs of a particular software version are integral to your analysis or methodology. This ensures reproducibility. For example: Esri. ArcGIS Desktop. Version 10.8.1. Redlands, CA: Esri, 2020.

Q: How do I cite geographic data that I accessed through a specific online data portal?

A: You should cite the original creator of the data, but you can also acknowledge the portal through which you accessed it. If the portal acts as a primary distributor, it might be treated as the publisher. For example: National Oceanic and Atmospheric Administration (NOAA). "Global Surface Temperature Anomalies, 1880-2022." Accessed November 12, 2023. Data accessed via the NOAA National Centers for Environmental Information portal, <https://www.ncei.noaa.gov/products/land-based-station/global-historical-climatology-network-daily>.

Q: What is a DOI, and why is it important for citing geographic data?

A: A DOI (Digital Object Identifier) is a persistent, unique identifier for digital objects. For geographic data, a DOI ensures that a citation remains valid even if the URL changes. It provides a stable and reliable way for readers to locate the exact dataset you used. Always include the DOI if one is available for the data.

Q: Should I include the date I accessed the geographic data?

A: Yes, for online geographic data that might be updated or changed over time, including the date of access is crucial. This is because the data you viewed on a specific date might be different if accessed later. This is a standard practice for citing most online resources in Chicago style.

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