



GIS Data Sources

(3) Metadata

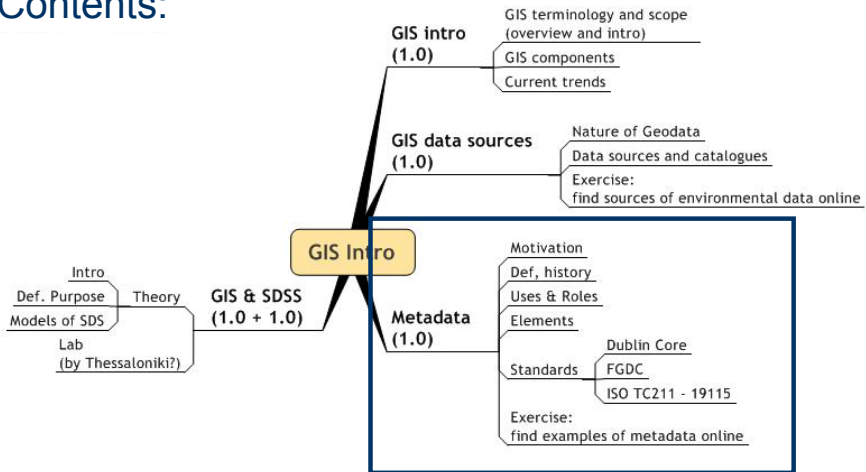
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Contents:





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3. Metadata

Definition

- **“data about data”**
- are data about the content, quality, condition, and other characteristics of data.

Examples:

- a library catalogue contains information (metadata) about publications (data)
- a file system maintains permissions (metadata) about files (data)
- Or... see the next slide...

Major uses of metadata are:

- Maintaining an organization's internal investment in geospatial data.
- Providing information about an organization's data holdings to data catalogues, clearinghouses, and brokerages.
- Providing information needed to process and interpret data to be received through a transfer from an external source.



3.1 Example: FGDC Data Standards (1)

- US Federal Geographic Data Committee (FGDC) approved standards for “Coordinating Geographic Data Acquisition and Access” (1994)

In 1994, the US Federal Geographic Data Committee (FGDC) approved standards for “Coordinating Geographic Data Acquisition and Access” (updated in 1998 and in 2000) (<http://www.fgdc.gov/metadata>).



3.1 Example: FGDC Data Standards (2)

The standards define

- Specifications
- Purpose
- Names established

Four Roles

- Availability
- Fitness for use
- Access
- Transfer

The standard specifies the information content of metadata for a set of digital geospatial data.

Its purpose is to provide a common set of terminology and definitions for concepts related to these metadata.

The standard establishes the names of data elements and compound elements (groups of data elements) to be used for these purposes, the definitions of these compound elements and data elements, and information about the values that are to be provided for the data elements.

The information included in the standard was selected based on four roles that metadata play.

- **Availability** - data needed to determine the sets of data that exist for a geographic location.
- **Fitness for use** - data needed to determine if a set of data meets a specific need.
- **Access** - data needed to acquire an identified set of data.
- **Transfer** - data needed to process and use a set of data.

3.2 Metadata (2)

Metadata Identification

- Name
- Developer
- Coverage
- Themes
- Currency
- Restrictions

In metadata identification answers the following questions (after Kavanagh, 2003):

- What is the name of the data set?
- Who developed the data set?
- What geographic area does it cover?
- What themes of information does it include?
- How current are the data?
- Are there restrictions on accessing or using the data?

3.2 Metadata (3):

Data Quality

- Quality
- Suitability
- Accuracy
- Completeness
- Consistency
- Lineage

Spatial Data Organization

- Model used
- Number of objects
- Encoding details

Data Quality answers questions such as:

- How good are the data?
- Is information available that allows the user to decide if the data are suitable for the intended purposes?
- What is the positional and attribute accuracy?
- Are the data complete?
- When was the consistency of the data verified?
- What data were used to create the data set and what processes were applied to these sources?

Spatial Data Organization:

- What spatial data model was used to code the spatial data?
- How many spatial objects are there?
- Are methods other than coordinates, such as street addresses, used to encode locations?

3.2 Metadata (4):

Spatial Reference

- Coordinate type
- Projection
- Datum
- Conversion parameters

Entity and Attribute Information

- Information included
- Encoding
- Use of codes
- Meaning of codes

Spatial Reference:

- Are coordinate locations encoded using longitude and latitude?
- Is a map projection or grid system, such as a state plane coordinate system, used?
- What horizontal and vertical datums are used?
- What parameters should be used to convert the data to another coordinate grid system?

Entity and Attribute Information:

- What geographic information (roads, houses, elevation, temperature, etc.) is included?
- How is this information encoded?
- What codes were used?
- What do the codes mean?

3.2 Metadata (5)

Distribution

- Distributor
- Format
- Media
- Online availability
- Cost

Reference

- Time of compilation
- Agency responsible

Distribution:

- From whom can I obtain the data?
- What formats are available?
- What media are available?
- Are the data available online?
- What is the price of the data?

Metadata Reference:

- When were the metadata compiled?
- By whom?



3.2 Summary

Metadata is crucial for online search /finding datasets as well as their proper documentation and use.

An excellent reading material – summary about metadata – is provided here:

Socioeconomic Data and Applications Centre (SEDAC). *Metadata* [online]. Available from <http://sedac.ciesin.columbia.edu/metadata/> URL last validated 25/04/2006.



References

Kavanagh, B.F. 2003. *Geomatics*. Upper Saddle River, NJ: Prentice Hall

<http://www.fgdc.gov/metadata>

Socioeconomic Data and Applications Centre (SEDAC). *Metadata* [online]. Available from <http://sedac.ciesin.columbia.edu/metadata/> URL last validated 25/04/2006.