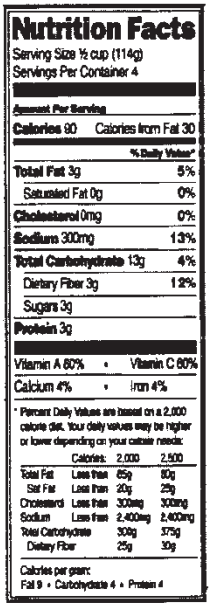
Geospatial Metadata

What are Metadata?



Nutrition Facts

Serving Size ½ cup (114g)
Servings Per Container 4

Amount Per Serving	
Calories 90	Calories from Fat 30
	% Daily Value*
Total Fat 3g	5%
Saturated Fat 0g	0%
Cholesterol 0mg	0%
Sodium 300mg	13%
Total Carbohydrate 13g	4%
Dietary Fiber 3g	12%
Sugars 3g	
Protein 3g	
Vitamin A 60% •	Vitamin C 60%
Calcium 4% •	Iron 4%

* Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories:	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Calories per gram:
Fat 9 • Carbohydrate 4 • Protein 4

Recognize this? It is the food label required by the Food and Drug Administration on all food packaged and transferred from one place to another. As a nation, we have been putting some form of labels on our food since 1913. Today, this label, with its mandatory and voluntary components, tells the consumer everything they need to know to make a decision about the packaged food's ingredients and nutritional content. Using this label the consumer can make an informed decision about the product's fitness for use or consumption.

Sound familiar? Just as food is our body's fuel, spatial data is the fuel of the GIS. How do you determine the "really good stuff" from the "junk food"? How do you know if the spatial data is "good" for your system?

The Content Standards for Digital Geospatial Metadata were adopted by the Federal Geographic Data Committee (FGDC) to label geospatial datasets. Like a company whose product is food, the metadata standard documents the characteristics of data so that consumers can determine the data's fitness for their purpose.

Why Metadata?

The major uses of metadata are:

- to help organize and maintain an organization's internal investment in spatial data,
- to provide information about an organization's data holdings to data catalogues, clearinghouses, and brokerages, and
- to provide information to process and interpret data received through a transfer from an external source.

The Standard

What do we need to know about our datasets? The standard provides a common set of terminology and definitions for the documentation of geospatial data, including data elements for the following topics:

Identification Information — basic information about the data set. Examples include title, geographic area covered, currentness, and rules for acquiring or using the data.

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Data Quality Information — an assessment of the quality of the data set. Examples include positional and attribute accuracy, completeness, consistency, sources of information, and methods used to produce the data. Recommendations on information to be reported and tasks to be performed are in the Spatial Data Transfer Standard (Federal Information Processing Standard 173 - 1992).

Spatial Data Organization Information — the mechanism used to represent spatial information in the data set. Examples include the method used to represent spatial positions directly (such as raster or vector) and indirectly (such as street addresses or county codes) and the number of spatial objects in the data set.

Spatial Reference Information — description of the reference frame for, and means of encoding, coordinates in the data set. Examples include the name of and parameters for map projections or grid coordinate systems, horizontal and vertical datums, and the coordinate system resolution.

Entity and Attribute Information — information about the content of the data set, including the entity types and their attributes and the domains from which attribute values may be assigned. Examples include the names and definitions of features, attributes, and attribute values.

Distribution Information — information about obtaining the data set. Examples include a contact for the distributor, available formats, information about how to obtain data sets online or on physical media (such as cartridge tape or CD-ROM), and fees for the data.

Metadata Reference Information — information on the currentness of the metadata information and the responsible party.

The standard has sections that specify contact information for organizations or individuals that developed or distribute the data set, temporal information for time periods covered by the data set, and citation information for the data set and information sources from which the data were derived.

The standard does not specify how this information is organized in a computer system or in a data transfer, nor the means by which this information is transmitted or communicated to the user. At this point in time, these formats are optional.

Additional Information

The standard and other metadata materials, along with the implementation guidelines for the clearinghouse, are available from the FGDC Secretariat at the above address or from the FGDC server connected to the Internet via: Anonymous FTP

Metadata - fgdc.er.usgs.gov under the subdirectory /pub/metadata
Clearinghouse -fgdc.er.usgs.gov under the subdirectory /pub/clearinghouse

The README files in the subdirectories give detailed information about the available files.

FGDC Web Server http://fgdc.er.usgs.gov/fgdc.html