OREGON GIS METADATA STANDARD

Version 2.02
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v.1 original metadata standard, December 2002
v.2.0 revised text to match other standard documents
v 2.01 revised minimum metadata elements list, edited narrative
v 2.02 revised based on comments received during 45 day review

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Introduction

The purpose of this document is to specify the format and minimum elements that comprise Oregon's geospatial metadata standard. The current Oregon metadata standard is based on the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata (CSDGM). This standard applies to all GIS data created and maintained by state agencies (or contracted for by state agencies) intended for external distribution. It also serves as a general geospatial metadata best practices recommendation for other GIS data.

Data made available for Web-based mapping demands adequate metadata for proper discovery, identification, consumption, and maintenance. There are many formats, specifications, and processes for delivering spatial content to Web GIS consumers and developers. This content can be provided using various hardware and software combinations or through cloud based Software as a Service (SaaS) application solutions. Metadata standards, support and capabilities may differ between varying options. For example, ArcGIS Online (SaaS) currently only provides input for the following metadata fields to define individual items:

- Title
- Summary
- Description
- Access and Use Constraints
- Tags
- Credits

This provides the basic information needed to understand the data behind the service but leaves out many defining elements such as dates, authoritativeness, completeness, or contact information. Metadata associated with the original source data should be provided in a format that meets the Oregon metadata standard provided herein.

Below is an example of metadata describing a service, through a portal, with links to the full standard metadata, in both FGD and ISO formats, for the source data:

http://catalog.data.gov/dataset/noaa-seamless-raster-navigational-charts-rnc

Metadata Defined

A metadata record is a file of information, often presented as an XML document, which captures the basic characteristics of a data or information resource. Often described as "data about data", metadata enhances the utility and value of a dataset by summarizing key attributes of the data in a concise and consistent manner. Geospatial metadata commonly document geographic digital data such as Geographic Information System (GIS) files, geospatial databases, and earth imagery but can also be used to document geospatial resources including data catalogs, mapping applications, data models and related websites. Metadata records include core library catalog elements such as Title, Abstract, and Publication Data; geographic elements such as Geographic Extent and Projection Information; and database elements such as Attribute Label Definitions and Attribute Domain Values. Geospatial metadata are critical to data discovery and are an important component of the NSDI Clearinghouse and other data catalogs, including the Oregon Spatial Data Library (OSDL)[1].

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[1] From FGDC website (http://www.fgdc.gov/metadata)

Metadata Importance

Metadata helps geospatial data users find the data they need and determine how best to use it. Accurate and complete metadata benefit the data-producing organization as well. As personnel changes occur over time, institutional knowledge is lost if data is undocumented. Metadata may also be used to disclose limitations on data usage, provide disclaimers, and to associate the data to the organization that created it.

Metadata Creation and Editing

Metadata can be created and edited in many ways. There are numerous stand-alone software applications for metadata editing and maintenance. Appendix B includes a listing of select metadata tools along with the pros and cons of each.

FGDC CSDGM vs ISO 19115 Standards

The FGDC currently supports multiple metadata standards. The Content Standard for Digital Geospatial Metadata (CSDGM) is the long time FGDC endorsed geographic metadata standard, having been mandated for all federal agencies to document newly created geospatial data since January, 1995. CSDGM is the current Oregon metadata standard. However, the U.S. is in the process of implementing the International Standards Organization (ISO) geographic metadata standard (19115). ISO metadata implementation has been gradual as users explore the application of the standard and make recommendations for changes.

ISO 19115, like the CSDGM, is based on a standard achieved through consensus. The ISO standard, however, is based on the consensus of the international community while CSDGM consensus was limited to U.S. federal agencies. As a result, the ISO metadata standard better supports data sharing across national and cultural boundaries. Within the ISO standard, code lists (fixed domains) are used more often to control vocabulary, thereby improving search capability. Some metadata components, such as Maintenance Information, are enhanced and the new standard supports the documentation of data portals, web mapping applications and other web services.

Because the ISO 19115 standard is currently undergoing periodic revision and the North American Profile for this standard is in flux, the Oregon metadata standard remains the CSDGM.

Organizational Structure of the FGDC Content Standard for Digital Geospatial Metadata

Organizationally, the FGDC Content Standard for Digital Geospatial Metadata (CSDGM) is composed of sections, compound elements, and data elements. Sections are the main divisions

of the Standard. The CSDGM contains seven main sections and three supporting sections. The main sections are listed below.

Structure of the CSDGM	
1. Identification	General information about the data set. 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?
2. Data Quality	Information about the quality of horizontal and vertical positions, and the attributes assigned to features. Also includes information about data lineage.
3. Spatial Data	Organization Information about the data types contained in the data set.
4. Spatial Reference	Information about the coordinates used to describe locations in the data set.
5. Entity and Attribute	Names, definitions, and other information about the features and their attributes found in the data set.
6. Distribution	Information about how the data set is distributed.
7. Metadata Reference	Metadata about the metadata file. This section contains information about the metadata file itself. When were the metadata compiled? By whom?
The three supporting sections are described below.	
8. Citation	This section contains a structure to create a bibliographic reference to a data set.
9. Time Period	This section contains three structures for expressing dates and times.
10. Contact	This section contains information used to contact someone to ask questions about the metadata file or the data set.

The seven main sections comprise the framework of a complete metadata record. The three support sections contain elements that may be repeated throughout a single metadata record. For example, there may be a contact section for the data author and a second contact section for the metadata author. Taken together, these ten sections contain the metadata elements used to document a data set.

Conditionality of Metadata Elements

The FGDC Metadata Standard specifies three conditions that are applied to each section, compound element, and data element. These three conditions are:

Mandatory (M)	To conform to the Standard, this information must be provided.
Mandatory if Applicable (A)	If the data being document contains the characteristic described by this section, compound element, or data element, then the information must be provided to conform to the Standard.
Optional (O)	This information is optional and the user decides if it will be included in the metadata file.

Oregon Minimum Metadata Elements

The following metadata element list, in the same outline format as the CSDGM, constitutes the minimal metadata elements list and describes the Oregon Metadata Standard. Note that the set of Oregon minimum metadata elements differ from the CSDGM minimum mandatory elements. Additional elements can be included based on user needs and organizational preferences. Supporting sections are shown in red, as noted above, these sections contain multiple elements and may be repeated within a metadata record.

Element #	M = mandatory data element A = mandatory if applicable O = optional, but recommended		Domains for Data Entry Fields and Definitions for Compound Elements
1	Section 1: Identification		Basic information about the data set.
1.1		Citation	Information to be used to reference the data set.
8	M	Citation Information	*Compound Element: The reference to be used for the data set.*
1.2		Description	A characterization of the data set, including its intended use and limitations.
1.2.1	M	Abstract	*[free text] A general explanation of the dataset that refers to its origins and methods. Should be a paragraph of information.*
1.2.2	M	Purpose	*[free text] An explanation of why this dataset was created and what its intended purpose is. Should be a paragraph of information.*
1.2.3	A	Supplemental Information	*This section should refer to any additional documents that contain information about the data set. [free text]*
1.3		Time Period of Content	Time period(s) for which the data set corresponds to the currentness reference.
9	M	Time Period Information	*Compound Element: Information about the date and time of an event.*

1.3.1	A		Currentness Reference	*The context for the Time_Period_of_Content. e.g.: an orthophotograph may have been compiled and delivered in June (publication date) but flown in February (ground condition). [free text]*
1.5		Spatial Domain		The geographic areal domain of the data set.
1.5.1			Bounding Coordinates	The limits of coverage of a data set expressed by lat/long values. These values are populated by the GIS software
1.5.1.1	M		West Bounding Coordinate	Negative 180 <= West Bounding Coordinate < 180
1.5.1.2	M		East Bounding Coordinate	Negative 180 <= East Bounding Coordinate <= 180
1.5.1.3	M		North Bounding Coordinate	Negative 90.0 <= North Bounding Coordinate <= 90.0; North Bounding Coordinate >= South Bounding Coordinate
1.5.1.4	M		South Bounding Coordinate	Negative 90.0 <= South Bounding Coordinate <= 90.0; South Bounding Coordinate <= North Bounding Coordinate
1.6		Keywords		Words or phrases summarizing an aspect of the data set.
1.6.1			Theme	Subjects covered by the data set.
1.6.1.1	A		Theme Keyword Thesaurus	free text, Include broad and specific terms and use controlled vocabularies (thesauri) when possible.
1.6.1.2	M		Theme Keyword	free text
1.6.2.			Place	Geographic locations characterized by the data set.
1.6.2.1	A		Place Keyword Thesaurus	free text, "None", "Geographic Names Information System"
1.6.2.2	M		Place Keyword	free text
1.6.3			Stratum	For use in atmospheric, geologic, and oceanographic data, e.g., ionosphere, surface, seafloor
1.6.3.1	A		Stratum Keyword Thesaurus	free text, "None"
1.6.3.2	A		Stratum Keyword	free text
1.6.4			Temporal	For use in scientific and historical data, e.g., diurnal, Ming dynasty, Machine Age
1.6.4.1	A		Temporal Keyword Thesaurus	free text, "None"
1.6.4.2	A		Temporal Keyword	free text
1.7	M	Access Constraints		free text, Any restrictions or legal prerequisites to accessing the actual data set. Commonly applies to data sets that are exempt from public records laws such as endangered species, personal health, and intellectual properties., "None"

1.8	M	Use Constraints			free text, Any restrictions or legal prerequisites to using the data set. Common constraints include: "**This product is for informational purposes and may not have been prepared for, or be suitable for legal, engineering, or surveying purposes. Users of this information should review or consult the primary data and information sources to ascertain the usability of the information.**" "None"
1.9	M	Point of Contact			**Contact information for an individual or organization that is knowledgeable about the data set.**
10	**M**		Contact Information		**Compound Element: Identity of, and means to communicate with, person(s) and org.(s) associated with the data set.**
1.12		Security Information			**Handling restrictions imposed on the data set because of national security, privacy, etc.**
1.12.2	A		Security Classification		free text, e.g. "Secured", "Restricted", "Confidential", "Unrestricted", "Unclassified"
1.12.3	A	Security Handling Description			free text
2		**Section 2: Data Quality Information**			**A general assessment of the quality of the data set.**
2.3	**M**	**Completeness Report**			**free text, Is there anything I might expect to be in the data set that isn't? Identification of data omitted from the data set that might normally be expected, as well as the reason for the exclusion. This may include geographic exclusions, e.g. 'data was not available for the South Shores neighborhood'; categorical exclusions e.g. 'municipalities with populations under 1,000 were not included'; and definitions used, e.g. 'floating marsh was mapped as land'.**
2.1	O	Attribute Accuracy			An assessment of the accuracy of the identification of entities and assignment of attribute values in the data set.
2.1.1	O		Attribute Accuracy Report		free text
2.4		**Positional Accuracy**			**An assessment of the accuracy of the positions of spatial objects.**
2.4.1			**Horizontal Positional Accuracy**		**An estimate of accuracy of the horizontal positions of the spatial objects.**
2.4.1.1	**M**			**Horizontal Positional Accuracy Report**	**free text**
2.4.1.2				**Quantitative Horizontal Positional Accuracy Assessment**	**Numeric value assigned to summarize the accuracy of the horizontal coordinate measurements and the identification of the test that yielded the value.**
2.4.1.2.1	**A**				Horizontal Positional Accuracy Value — **free real**
2.4.1.2.2	**A**				Horizontal Positional Accuracy Explanation — **free text**
2.4.2			**Vertical Positional Accuracy**		**An estimate of accuracy of the vertical positions in the data set.**
2.4.2.1	**A**			**Vertical Positional Accuracy Report**	**free text**

2.4.2.2				Quantitative Vertical Positional Accuracy Assessment	Numeric value assigned to summarize the accuracy of the vertical coordinate measurements and the identification of the test that yielded the value.
2.4.2.2.1	A			Vertical Positional Accuracy Value	free numeric
2.4.2.2.2	A			Vertical Positional Accuracy Explanation	free text
2.5			Lineage		Info about the events, parameters, and source data which constructed the data set, and information about the responsible parties.
2.5.1			Source Information		List of sources and a short discussion of the information contributed by each.
2.5.1.1				Source Citation	Reference for a source data set.
8	M			Citation Information	Compound Element: The recommended reference to be used for the data set.
2.5.1.4				Source Time Period of Content	Time period(s) for which the source data set corresponds to the ground.
9	A			Time Period Information	Compound Element: Information about the date and time of an event.
2.5.1.4.1	A			Source Currentness Reference	free text, e.g. "ground condition", "publication date"
2.5.1.6	A			Source Contribution	free text, brief statement identifying the information contributed by the source to the data
2.5.2			Process Step		Information about a single event.
2.5.2.1	O			Process Description	free text
4			Section 4: Spatial Reference Information		The description of the reference frame for, and the means to encode, coordinates in the data set.
4.1			Horizontal Coordinate System Definition {4.1.1 - OR - 4.1.2 - OR - 4.1.3}		The reference frame or system from which linear or angular quantities are measured and assigned to the position that a point occupies.
4.1.1			Geographic		The quantities of lat/long which define the position of a point on the Earth's surface with respect to a reference spheroid.
4.1.1.1	A			Latitude Resolution	Latitude Resolution > 0.0
4.1.1.2	A			Longitude Resolution	Longitude Resolution > 0.0
4.1.1.3	M			Geographic Coordinate Units	e.g. "Decimal degrees", "Decimal minutes", "Decimal seconds", "Degrees and decimal minutes", "Degrees_ minutes_ and decimal seconds", "Radians", "Grads"
4.1.2			Planar {4.1.2.1 - OR - 4.1.2.2 - OR - 4.1.2.3}		The quantities of distances, or distances and angles, which define the position of a point on a reference plane to which the surface of the Earth has been projected.
4.1.2.1				Map Projection	The systematic representation of all or part of the surface of the Earth on a plane or developable surface.
4.1.2.1.1	M			Map Projection Name	e.g. "Albers Conical Equal Area", "Azimuthal Equidistant", "Equidistant Conic", "Equirectangular", "General Vertical Near-sided Projection", "Gnomomic", "Lambert Azimuthal Equal Area", "Lambert Conformal Conic", "Mercator", "Modified Stereographic for Alaska", "Miller Cylindrical", "Oblique Mercator", "Orthographic", "Polar Stereographic", "Polyconic", "Robinson", "Sinusoidal", "Space Oblique Mercator", "Stereographic", "Transverse Mercator", "van der Grinten", free text

4.1.2.1.23.2	M			Longitude of Central Meridian	Neg. 180.0 <= Longitude of Central Meridian < 180.0
4.1.2.1.23.3	M			Latitude of Projection Origin	Neg. 90.0 <= Latitude of Projection Origin <= 90.0
4.1.2.1.23.4	M			False Easting	free numeric
4.1.2.1.23.5	M			False Northing	free numeric
4.1.3			Local		A description of any coordinate system that is not aligned with the surface of the Earth.
4.1.3.1	A			Local Description	free text
4.1.3.2	A			Local Georeference Information	free text
4.1.4			Geodetic Model		Parameters for the shape of the Earth.
4.1.4.1	M			Horizontal Datum Name	free text, e.g. "North American Datum of 1927", "North American Datum of 1983"
4.1.4.2	M			Ellipsoid Name	free text, e.g. "Clarke 1866", "Geodetic Reference System 80"
4.1.4.3	M			Semi-major Axis	Semi-major Axis > 0.0
4.1.4.4	M			Denominator of Flattening Ratio	Denominator of Flattening > 0.0
4.2			Vertical Coordinate System Definition		The reference frame or system from which vertical distance (altitudes or depths) are measured.
4.2.1				Altitude System Definition	The reference frame or system from which altitudes (elevations) are measured. The term "altitude" is used instead of the common term "elevation" to conform to the terminology in Federal Information Processing Standards 70-1 and 173.
4.2.1.1	A			Altitude Datum Name	free text, e.g. "National Geodetic Vertical Datum of 1929", "North American Vertical Datum of 1988"
4.2.1.2	A			Altitude Resolution	Altitude Resolution > 0.0
4.2.1.3	A			Altitude Distance Units	free text, e.g. "meters", "feet"
4.2.1.4	A			Altitude Encoding Method	Explicit elevation coordinate included with horizontal coordinates, "Implicit coordinate", "Attribute values"
4.2.2				Depth System Definition	The reference frame or system from which depths are measured.
4.2.2.1	A			Depth Datum Name	free text, e.g. "Local surface", "Chart datum; datum for sounding reduction", "Lowest astronomical tide", "Highest astronomical tide", "Mean low water", "Mean high water", "Mean sea level", "Land survey datum", "Mean low water springs", "Mean high water springs", "Mean low water neap", "Mean high water neap", "Mean lower low water", "Mean lower low water springs", "Mean higher high water", "Mean higher low water", "Mean lower high water", "Spring tide", "Tropic lower low water", "Neap tide", "High water", "Higher high water", "Low water", "Low-water datum", "Lowest low water", "Lower low water", "Lowest normal low water", "Mean tide level", "Indian spring low water", "High-water full and charge", "Low-water full and charge", "Columbia River datum", "Gulf Coast low water datum", "Equatorial springs low water", "Approximate lowest astronomical tide", "No correction"
4.2.2.2	A			Depth Resolution	Depth Resolution > 0.0
4.2.2.3	A			Depth Distance Units	free text, e.g. "meters", "feet"

4.2.2.4	A		Depth Encoding Method	Explicit depth coordinate included with horizontal coordinates, "Implicit coordinate", "Attribute values"
5		Section 5: Entity and Attribute Information {5.1 - AND/OR - 5.2}		Details about the information content of the data set, including the entity types, their attributes, and the domains from which attribute values may be assigned.
5.1			Detailed Description	Description of the entities, attributes, attribute values, and related characteristics encoded in the data.
5.1.2			Attribute	A defined characteristic of an entity.
5.1.2.1	M		Attribute Label	free text
5.1.2.2	M		Attribute Definition	free text
5.1.2.3	A		Attribute Definition Source	free text
5.2			Overview Description	Provide an overview description if: • your database is well-documented as a data dictionary, data specification manual, or some other format, AND you can provide data consumers a citation for the document and, if applicable, a website link to the document. • your database is minimal and you can adequately describe in a short descriptive paragraph. For example, for a black and white orthophotograph, you may want to indicate that each pixel will have a gray scale value between 0 (black) and 255 (white). Be sure to explain any unclear attribute labels and codes.
5.2.1	M		Entity and Attribute Overview	free text - detailed summary of the information contained in a data set.
5.2.2	A		Entity and Attribute Detail Citation	free text - reference to the complete description of the entity types, attributes, and attribute values for the data set.
6		Section 6 : Distribution Information		Information about the distributor of and options for obtaining the data set.
6.1			Distributor	The party from whom the data set may be obtained.
10	M		Contact Information	Compound Element: Identity of, and means to communicate with, person(s) and org.(s) associated with the data set.
6.4			Standard Order Process {6.4.1 - OR - 6.4.2}	The common ways in which the data set may be obtained or received, and related instructions and fee information.
6.4.3	A		Fees	free text
7		Section 7: Metadata Reference Information		Information on the currentness of the metadata information, and the responsible party.
7.1	M	Metadata Date		free date, The date that the metadata is written or completed.
7.4		Metadata Contact		The party responsible for the metadata information.
10	M		Contact Information	Compound Element: ID of, and means to communicate with, person(s) and org.(s) associated with the data set.
Compound Element Definitions:				
8		Section 8: Citation Information		The reference to be used for the data set, larger work, lineage, or cross reference.

8.1	M	Originator		*[free text]* **It is recommended that you indicate the party responsible for the data set. While that is most commonly the organization that developed the data set, in some cases, it is not. For example, if a county planning department hires a contractor to build a street centerline road file, the planning department, not the contractor should be identified as the Originator. The contractor should be fully cited using the Data_Set_Credit (1.11) element, e.g. 'this data set was developed for the Wayne County Planning Department by Smith Engineering, Inc'.**
8.2	M	Publication Date		*[free date, "Unknown", "Unpublished material"]* **The date that the data was published or otherwise made available**
8.4	M	Title		*Name of the data set, larger work, lineage, or cross reference. [free text]*
8.5	A	Edition		*[free text] (VERSION)*
8.7		Series Information		**The identification of the series publication of which the data set is a part.**
8.7.2	A		Issue Identification	*Required for larger work (i.e. GMS-114, IMS-08, etc.). [free text]*
8.8		Publication Information		**Publication details for published data sets.**
8.8.2	M		Publisher	*Oregon Department of Geology and Mineral Industries [free text]*
8.10	A	Online Linkage		*Where applicable it is recommended that the first online linkage point to the source organization or agency website, and the second online linkage point to the download location for the data set [free text]*
9		**Section 9: Time Period Information {9.1 - or - 9.2 - or - 9.3}**		**Information about the date and time of an event.**
9.1		Single Date/Time		**Means of encoding a single date and time.**
9.1.1	M		Calendar Date	*MM/DD/YYYY [free date, "Unknown"]*
9.1.2	A		Time of Day	*12:00AM PST [free time, "Unknown"]*
9.2		Multiple Dates/Times		**Means of encoding multiple individual dates and times.**
9.2.1	A		Calendar Date	*MM/DD/YYYY [free date, "Unknown"]*
9.2.2	A		Time of Day	*12:00AM PST [free time, "Unknown"]*
9.3		Range of Dates/Times		**Means of encoding a range of dates and times.**
9.3.1	A		Beginning Date	*MM/DD/YYYY [free date, "Unknown"]*
9.3.2	A		Beginning Time	*12:00AM PST [free time, "Unknown"]*
9.3.3	A		Ending Date	*MM/DD/YYYY [free date, "Unknown", "Present"]*
9.3.4	A		Ending Time	*12:00AM PST [free time, "Unknown"]*
10		**Section 10: Contact Information**		**Identity of, and means to communicate with, person(s) and org.(s) assoc.'d with the data set.**
10.2	M	Contact Organization Primary		**The organization, and the member of the org., assoc.'d with the data set. Used in cases where the assoc. of the organization is more significant than the assoc. of the person to the data set.**
10.2.1	M		Contact Organization	free text
10.3	A	Contact Position		free text, "GIS Coordinator", etc...
10.5	M	Contact Voice Telephone		free text

Appendix A: Example Metadata Entry

(To be added following in summer, 2015)

Appendix B: Metadata Creation and Editing Tools*

There are a number of tools available now for creating digital FGDC-compliant metadata. The links below will take you to documentation for some of the more commonly used packages.

- ESRI ArcCatalog
  http://resources.arcgis.com/en/help/main/10.2/index.html#//006m00000001000000

- EPA Metadata Editor (EME)
  https://edg.epa.gov/EME/

- USGS Metadata Wizard
  https://www.sciencebase.gov/catalog/item/50ed7aa4e4b0438b00db080a

- NOAA MERMAid
  http://www.ncddc.noaa.gov/metadata-standards/mermaid/

- CatMDEdit
  http://catmdedit.sourceforge.net/

- MapInfo Manager
  http://www.pitneybowes.com/au/location-intelligence/mapinfo-suite/mapinfo-manager.html

*Disclaimer for use of third-party tools. This list is not intended to serve as a comprehensive list of metadata creation and/or editing tools. The State of Oregon does not endorse any third-party software.

APPENDIX C: Full FGDC CSDGM elements list

Element #					Domains for Data Entry Fields and Definitions for Compound Elements
1		Section 1: Identification			Basic information about the data set.
1.1			Citation		Information to be used to reference the data set.
8	**M**		Citation Information		***The reference to be used for the data set.***
1.2			Description		A characterization of the data set, including its intended use and limitations.
1.2.1	**M**		Abstract		*An general explanation of the dataset that refers to its origins and methods. Should be a paragraph of information. [free text]*
1.2.2	**M**		Purpose		*An explanation of why this dataset was created and what its intended purpose is. Should be a paragraph of information. [free text]*
1.2.3	**A**		Supplemental Information		*This section should refer to any additional documents that contain information about the data set. [free text]*
1.3			Time Period of Content		Time period(s) for which the data set corresponds to the currentness reference.
9	**M**		Time Period Information		***Information about the date and time of an event.***
1.3.1	**A**		Currentness Reference		*[free text, "ground condition", "publication date"]*
1.4			Status		The state of and maintenance information for the data set.
1.4.1	**O**		Progress		Complete, "In work", "Planned"
1.4.2	**O**		Maintenance and Update Frequency		free text, "Continually", "Daily", "Weekly", "Monthly", "Annually", "Unknown", "As needed", Irregular, "None planned"
1.5			Spatial Domain		The geographic areal domain of the data set.
1.5.1				Bounding Coordinates	The limits of coverage of a data set expressed by lat/long values.
1.5.1.1	**M**			West Bounding Coordinate	Negative 180 <= West Bounding Coordinate < 180
1.5.1.2	**M**			East Bounding Coordinate	Negative 180 <= East Bounding Coordinate <= 180
1.5.1.3	**M**			North Bounding Coordinate	Negative 90.0 <= North Bounding Coordinate <= 90.0; North Bounding Coordinate >= South Bounding Coordinate
1.5.1.4	**M**			South Bounding Coordinate	Negative 90.0 <= South Bounding Coordinate <= 90.0; South Bounding Coordinate <= North Bounding Coordinate
1.5.2	O			Data Set G-Polygon	Coordinates defining the outline of an area covered by a data set.
1.5.2.1	O		*	Data Set G-Polygon Outer G-Ring {1.5.2.1.1 - OR - 1.5.2.1.2}	The closed nonintersecting boundary of an interior area.
1.5.2.1.1	O			* G-Ring Point	A single geographic location. (4 to an unlimited number of repetitions)
1.5.2.1.1.1	O			* G-Ring Latitude	Negative 90 <= G-Ring Latitude <= 90
1.5.2.1.1.2	O			* G-Ring Longitude	Negative 180 <= G-Ring Latitude < 180

1.5.2.1.2	O				G-Ring	-90.0 <= G-Ring Latitude <= 90.0; -180.0 <= G-Ring Latitude < 180.0
1.5.2.2	O			Data Set G-Polygon Exclusion G-Ring {1.5.2.2.1 - OR - 1.5.2.2.2}		The closed nonintersecting boundary of a void area (or "hole" in an interior area).
1.5.2.2.1	O			*	G-Ring Point	A single geographic location. (4 to an unlimited number of repetitions)
1.5.2.2.1.1	O				G-Ring Latitude	Negative 90 <= G-Ring Latitude <= 90
1.5.2.2.1.2	O				G-Ring Longitude	Negative 180 <= G-Ring Latitude < 180
1.5.2.2.2	O				G-Ring	-90.0 <= G-Ring Latitude <= 90.0; -180.0 <= G-Ring Latitude < 180.0
1.6			Keywords			Words or phrases summarizing an aspect of the data set.
1.6.1				Theme		Subjects covered by the data set.
1.6.1.1	A				Theme Keyword Thesaurus	free text, "None"
1.6.1.2	M				Theme Keyword	free text
1.6.2.				Place		Geographic locations characterized by the data set.
1.6.2.1	A				Place Keyword Thesaurus	free text, "None", "Geographic Names Information System"
1.6.2.2	M				Place Keyword	free text
1.6.3				Stratum		Layered, vertical locations characterized by the data set.
1.6.3.1	A				Stratum Keyword Thesaurus	free text, "None"
1.6.3.2	A				Stratum Keyword	free text
1.6.4				Temporal		Time period(s) characterized by the data set.
1.6.4.1	A				Temporal Keyword Thesaurus	free text, "None"
1.6.4.2	A				Temporal Keyword	free text
1.7	M		Access Constraints			free text, "None", data cannot be shared
1.8	M		Use Constraints			free text, "None", data should not be used for navigational purposes
1.9	M		Point of Contact			Contact information for an individual or organization that is knowledgeable about the data set.
10	M			Contact Information		Identity of, and means to communicate with, person(s) and org.(s) associated with the data set.
1.10			Browse Graphic			A graphic that provides an illustration of the data set. The graphic should contain a legend.
1.10.1	O			Browse Graphic File Name		free text (URL of browse graphic where applicable)
1.10.2	O			Browse Graphic File Description		free text
1.10.3	O			Browse Graphic File Type		free text, "CGM" Computer Graphics Metafile, "EPS" Encapsulated Postscript format, GIF Graphic Interchange Format, "JPEG" Joint Photographic Experts Group format, PBM Portable Bit Map format, "PS" Postscript format, "TIFF" Tagged Image File Format, XWD X-Windows Dump

1.11	O	Data Set Credit			free text (credit to funder, etc…)
1.12		Security Information			Handling restrictions imposed on the data set because of national security, privacy, etc.
1.12.1	O		Security Classification System		free text
1.12.2	A		Security Classification		free text, "Top secret", "Secret", "Confidential", "Restricted", "Unclassified", "Sensitive"
1.12.3	A		Security Handling Description		free text
1.13	O	Native Data Set Environment			free text
1.14	O	Cross Reference			Information about other, related data sets that are likely to be of interest.
8	A		Citation Information		The recommended reference to be used for the data set.
2		**Section 2: Data Quality Information**			A general assessment of the quality of the data set.
2.1	O	Attribute Accuracy			An assessment of the accuracy of the identification of entities and assignment of attribute values in the data set.
2.1.1	O		Attribute Accuracy Report		free text
2.1.2	O		Quantitative Attribute Accuracy Assessment		A value assigned to summarize the accuracy of the identification of the entities and assignments of values in the data set and the identification of the test that yielded the value.
2.1.2.1	O			Attribute Accuracy Value	free text, "Unknown"
2.1.2.2	O			Attribute Accuracy Explanation	free text
2.2	O	Logical Consistency Report			free text
2.3	M	Completeness Report			free text
2.4		Positional Accuracy			An assessment of the accuracy of the positions of spatial objects.
2.4.1			Horizontal Positional Accuracy		An estimate of accuracy of the horizontal positions of the spatial objects.
2.4.1.1	M			Horizontal Positional Accuracy Report	free text
2.4.1.2				Quantitative Horizontal Positional Accuracy Assessment	Numeric value assigned to summarize the accuracy of the horiz. coord. measurements and the identification of the test that yielded the value.
2.4.1.2.1	A				Horizontal Positional Accuracy Value	free real
2.4.1.2.2	A				Horizontal Positional Accuracy Explanation	free text
2.4.2				Vertical Positional Accuracy	An estimate of accuracy of the vertical positions in the data set.
2.4.2.1	A				Vertical Positional Accuracy Report	free text
2.4.2.2					Quantitative Vertical Positional Accuracy Assessment	Numeric value assigned to summarize the accuracy of the vertical coord. measurements and the identification of the test that yielded the value.

2.4.2.2.1	A				Vertical Positional Accuracy Value	free real
2.4.2.2.2	A				Vertical Positional Accuracy Explanation	free text
2.5		Lineage				Info about the events, parameters, and source data which constructed the data set, and information about the responsible parties.
2.5.1			Source Information			List of sources and a short discussion of the information contributed by each.
2.5.1.1				Source Citation		Reference for a source data set.
8	**M**				Citation Information	The recommended reference to be used for the data set.
2.5.1.2	O			Source Scale Denominator		Source Scale Denominator > 1
2.5.1.3	O			Type of Source Media		free text, "paper", "stable-base material", "microfiche", "microfilm", "audiocassette", "chart", "filmstrip", "transparency", "videocassette", "videodisc", "videotape", "physical model", "computer program", "disc", "cartridge tape", "magnetic tape", "online", "CD-ROM", "electronic bulletin board", "electronic mail system"
2.5.1.4				Source Time Period of Content		Time period(s) for which the source data set corresponds to the ground.
9	**A**				Time Period Information	Information about the date and time of an event.
2.5.1.4.1	A				Source Currentness Reference	free text, "ground condition", "publication date"
2.5.1.5	O			Source Citation Abbreviation		free text
2.5.1.6	A			Source Contribution		free text
2.5.2			Process Step			Information about a single event.
2.5.2.1	O			Process Description		free text
2.5.2.2	O			Source Used Citation Abbreviation		Source Citation Abbreviations from the Source Information entries for the data set
2.5.2.3	O			Process Date		free date, "Unknown", "Not complete"
2.5.2.4	O			Process Time		free time
2.5.2.5	O			Source Produced Citation Abbreviation		Source Citation Abbreviations from the Source Information entries for the data set
2.5.2.6				Process Contact		The party responsible for the processing step information.
10	**O**				Contact Information	ID of, and means to communicate with, person(s) and org.(s) associated with the data set.
2.6	O	Cloud Cover				0 <= Cloud Cover <= 100, "Unknown"
3		**Section 3: Spatial Data Organization Information {3.3 - OR - 3.4}**				The mechanism used to represent spatial information in the data set.
3.1	O	Indirect Spatial Reference				free text
3.2	O	Direct Spatial Reference Method				Point, "Vector", "Raster"
3.3		Point and Vector Object Information {3.3.1 - OR - 3.3.2}				The types and numbers of vector or nongridded point spatial objects in the data set.
3.3.1			SDTS Terms Description			Point and vector object information using the terms and concepts from "Spatial Data Concepts".

3.3.1.1	O				SDTS Point and Vector Object Type	Point, "Entity point", "Label point", "Area point", "Node, planar graph", "Node, network", "String", "Link", "Complete chain", "Area chain", "Network chain, planar graph", "Network chain, nonplanar graph", "Circular arc, three point center", "Elliptical arc", "Uniform B spline", "Piecewise Bezier", "Ring with mixed composition", "Ring composed of strings", "Ring composed of chains", "Ring composed of arcs", "G-polygon", "GT-polygon composed of rings", "GT-polygon composed of chains", "Universe polygon composed of rings", "Universe polygon composed of chains", "Void polygon composed of rings", "Void polygon composed of chains"
3.3.1.2	O			Point and Vector Object Count		Point and Vector Object Count > 0
3.3.2			VPF Terms Description			Point and vector object information using the terms and concepts from DoD's Vector Product File.
3.3.2.1	O			VPF Topology Level		0 <= VPF Topology Level <= 3
3.3.2.2				VPF Point and Vector Object Information		Information about VPF point and vector objects.
3.3.2.2.1	O				VPF Point and Vector Object Type	Node, "Edge", "Face", "Text"
3.3.2.2.2	O				Point and Vector Object Count	Point and Vector Object Count > 0
3.4			Raster Object Information			The types and numbers of raster spatial objects in the data set.
3.4.1	O			Raster Object Type		Point, "Pixel", "Grid Cell", "Voxel"
3.4.2	O			Row Count		Row Count > 0
3.4.3	O			Column Count		Column Count > 0
3.4.4	O			Vertical Count		Depth Count > 0
4		**Section 4: Spatial Reference Information**				The descrip. of the reference frame for, and the means to encode, coordinates in the data set.
4.1			Horizontal Coordinate System Definition {4.1.1 - OR - 4.1.2 - OR - 4.1.3}			The reference frame or system from which linear or angular quantities are measured and assigned to the position that a point occupies.
4.1.1				Geographic		The quantities of lat/long which define the position of a point on the Earth's surface with respect to a reference spheroid.
4.1.1.1	A				Latitude Resolution	Latitude Resolution > 0.0
4.1.1.2	A				Longitude Resolution	Longitude Resolution > 0.0
4.1.1.3	M				Geographic Coordinate Units	Decimal degrees, "Decimal minutes", "Decimal seconds", "Degrees and decimal minutes", "Degrees_ minutes_ and decimal seconds", "Radians", "Grads"
4.1.2				Planar {4.1.2.1 - OR - 4.1.2.2 - OR - 4.1.2.3}		The quantities of distances, or distances and angles, which define the position of a point on a reference plane to which the surface of the Earth has been projected.

4.1.2.1				Map Projection		The systematic representation of all or part of the surface of the Earth on a plane or developable surface.
4.1.2.1.1	M				Map Projection Name	Albers Conical Equal Area, "Azimuthal Equidistant", "Equidistant Conic", "Equirectangular", "General Vertical Near-sided Projection", "Gnomomic", "Lambert Azimuthal Equal Area", "Lambert Conformal Conic", "Mercator", "Modified Stereographic for Alaska", "Miller Cylindrical", "Oblique Mercator", "Orthographic", "Polar Stereographic", "Polyconic", "Robinson", "Sinusoidal", "Space Oblique Mercator", "Stereographic", "Transverse Mercator", "van der Grinten", free text
4.1.2.1.23.2	M				Longitude of Central Meridian	Neg. 180.0 <= Longitude of Central Meridian < 180.0
4.1.2.1.23.3	M				Latitude of Projection Origin	Neg. 90.0 <= Latitude of Projection Origin <= 90.0
4.1.2.1.23.4	M				False Easting	free real
4.1.2.1.23.5	M				False Northing	free real
4.1.3			Local			A description of any coordinate system that is not aligned with the surface of the Earth.
4.1.3.1	A			Local Description		free text
4.1.3.2	A			Local Georeference Information		free text
4.1.4			Geodetic Model			Parameters for the shape of the Earth.
4.1.4.1	M			Horizontal Datum Name		free text, "North American Datum of 1927", "North American Datum of 1983"
4.1.4.2	M			Ellipsoid Name		free text, "Clarke 1866", "Geodetic Reference System 80"
4.1.4.3	M			Semi-major Axis		Semi-major Axis > 0.0
4.1.4.4	M			Denominator of Flattening Ratio		Denominator of Flattening > 0.0
4.2			Vertical Coordinate System Definition			The reference frame or system from which vertical distance (altitudes or depths) are measured.
4.2.1				Altitude System Definition		The reference frame or system from which altitudes (elevations) are measured. The term "altitude" is used instead of the common term "elevation" to conform to the terminology in Federal Information Processing Standards 70-1 and 173.
4.2.1.1	A			Altitude Datum Name		free text, "National Geodetic Vertical Datum of 1929", "North American Vertical Datum of 1988"
4.2.1.2	A			Altitude Resolution		Altitude Resolution > 0.0
4.2.1.3	A			Altitude Distance Units		free text, "meters", "feet"
4.2.1.4	A			Altitude Encoding Method		Explicit elevation coordinate included with horizontal coordinates, "Implicit coordinate", "Attribute values"

4.2.2			Depth System Definition		The reference frame or system from which depths are measured.
4.2.2.1	A		Depth Datum Name		free text, "Local surface", "Chart datum; datum for sounding reduction", "Lowest astronomical tide", "Highest astronomical tide", "Mean low water", "Mean high water", "Mean sea level", "Land survey datum", "Mean low water springs", "Mean high water springs", "Mean low water neap", "Mean high water neap", "Mean lower low water", "Mean lower low water springs", "Mean higher high water", "Mean higher low water", "Mean lower high water", "Spring tide", "Tropic lower low water", "Neap tide", "High water", "Higher high water", "Low water", "Low-water datum", "Lowest low water", "Lower low water", "Lowest normal low water", "Mean tide level", "Indian spring low water", "High-water full and charge", "Low-water full and charge", "Columbia River datum", "Gulf Coast low water datum", "Equatorial springs low water", "Approximate lowest astronomical tide", "No correction"
4.2.2.2	A		Depth Resolution		Depth Resolution > 0.0
4.2.2.3	A		Depth Distance Units		free text, "meters", "feet"
4.2.2.4	A		Depth Encoding Method		Explicit depth coordinate included with horizontal coordinates, "Implicit coordinate", "Attribute values"
5		**Section 5: Entity and Attribute Information {5.1 - AND/OR - 5.2}**			Details about the information content of the data set, including the entity types, their attributes, and the domains from which attribute values may be assigned.
5.1		Detailed Description			Description of the entities, attributes, attribute values, and related characteristics encoded in the data.
5.1.1			Entity Type		The definition and description of a set into which similar entity instances are classified.
5.1.1.1	O		Entity Type Label		free text
5.1.1.2	O		Entity Type Definition		free text
5.1.1.3	O		Entity Type Definition Source		free text
5.1.2			Attribute		A defined characteristic of an entity.
5.1.2.1	M		Attribute Label		free text
5.1.2.2	M		Attribute Definition		free text
5.1.2.3	A		Attribute Definition Source		free text
5.1.2.4			Attribute Domain Values {5.1.2.4.1 - OR - 5.1.2.4.2 - OR - 5.1.2.4.3 - OR - 5.1.2.4.4}		The valid values that can be assigned for an attribute.
5.1.2.4.1				Enumerated Domain	The members of an established set of valid values.
5.1.2.4.1.1	O			Enumerated Domain Value	free text
5.1.2.4.1.2	O			Enumerated Domain Value Definition	free text

5.1.2.4.1.3	O						Enumerated Domain Value Definition Source	free text
5.1.2.4.1.4	O						Attribute (See 5.1.2 above)	
5.1.2.4.2						Range Domain		The minimum and maximum values of a continuum of valid values.
5.1.2.4.2.1	O						Range Domain Minimum	free text
5.1.2.4.2.2	O						Range Domain Maximum	free text
5.1.2.4.2.3	O						Attribute Units of Measurement	free text
5.1.2.4.2.4	O						Attribute Measurement Resolution	Attribute Measurement Resolution > 0.0
5.1.2.4.2.5	O						Attribute (See 5.1.2 above)	
5.1.2.4.3						Codeset Domain		Reference to a standard or list which contains the members of an established set of valid values.
5.1.2.4.3.1	O						Codeset Name	free text
5.1.2.4.3.2	O						Codeset Source	free text
5.1.2.4.4	O					Unrepresentable Domain		free text
5.1.2.5	O				Beginning Date of Attribute Values			free date
5.1.2.6	O				Ending Date of Attribute Values			free date
5.1.2.7					Attribute Value Accuracy Information			An assessment of the accuracy of the assignment of attribute values.
5.1.2.7.1	O					Attribute Value Accuracy		free real
5.1.2.7.2	O					Attribute Value Accuracy Explanation		free text
5.1.2.8	O				Attribute Measurement Frequency			free text, "Unknown", "As needed", "Irregular", "None planned"
5.2				Overview Description				Summary of, and citation to detailed description of, the information content of the data set.
5.2.1	M				Entity and Attribute Overview			free text
5.2.2	A				Entity and Attribute Detail Citation			free text
6		**Section 6 : Distribution Information**						Information about the distributor of and options for obtaining the data set.
6.1			Distributor					The party from whom the data set may be obtained.
10	**M**			Contact Information				Identity of, and means to communicate with, person(s) and org.(s) associated with the data set.
6.2	O		Resource Description					free text
6.3	O		Distribution Liability					free text
6.4			Standard Order Process {6.4.1 - OR - 6.4.2}					The common ways in which the data set may be obtained or received, and related instructions and fee information.

6.4.1	O			Non-digital Form			free text
6.4.2				Digital Form			The description of options for obtaining the data set on a computer-compatible media.
6.4.2.1					Digital Transfer Information {6.4.2.1.2 - OR - 6.4.2.1.3}		Description of the form of the data to be distributed.
6.4.2.1.1	O					Format Name	free text, "ARCE" ARC/INFO Export format, "ARCG" ARC/INFO Generate format, "ASCII" ASCII file, formatted for text attributes, declared format, "BIL" Imagery, band interleaved by line, "BIP" Imagery, band interleaved by pixel, "BSQ" Imagery, band interleaved sequential, "CDF" Common Data Format, "CFF" Cartographic Feature File (U.S. Forest Service), "COORD" User-created coordinate file, declared format, "DEM" Digital Elevation Model format, (U.S. Geological Survey), "DFAD" Digital Feature Analysis Data (Defense Mapping Agency), "DGN" Microstation format (Intergraph Corporation), "DIGEST" Digital Geographic Information, Exchange Standard, "DLG" Digital Line Graph (U.S. Geological Survey), "DTED" Digital Terrain, Elevation Data (MIL-D-89020), "DWG" AutoCAD Drawing format, "DX90" Data Exchange '90, "DXF" AutoCAD Drawing Exchange Format, "ERDAS" ERDAS image files (ERDAS Corporation), "GRASS" Geographic Resources Analysis Support System, "HDF" Hierarchical Data Format, "IGDS" Interactive Graphic Design System format, (Intergraph Corporation), "IGES" Initial Graphics Exchange Standard, "MOSS" Multiple, Overlay Statistical System export file, "netCDF" network Common Data Format, "NITF" National Imagery Transfer Format, "RPF" Raster Product Format (Defense Mapping Agency), "RVC" Raster Vector Converted format (MicroImages), "RVF" Raster Vector Format (MicroImages), "SDTS" Spatial Data Transfer Standard (Federal Information Processing Standard 173), "SIF" Standard Interchange Format (DOD Project 2851), "SLF" Standard Linear Format (Defense Mapping Agency), "TIFF" Tagged Image File Format, "TGRLN" Topologically Integrated Geographic Encoding and Referencing (TIGER) Line format, (Bureau of the Census), "VPF" Vector Product Format (Defense Mapping Agency)
6.4.2.1.2	O					Format Version Number	free text
6.4.2.1.3	O					Format Version Date	free date
6.4.2.1.4	O					Format Specification	free text
6.4.2.1.5	O					Format Information Content	free text
6.4.2.1.6	O					File Decompression Technique	free text, "No compression applied"
6.4.2.1.7	O					Transfer Size	Transfer Size > 0.0
6.4.2.2					Digital Transfer Option {6.4.2.2.1 - OR - 6.4.2.2.2}		The means and media by which a data set is obtained from the distributor.
6.4.2.2.1						Online Option	Information required to directly obtain the data set electronically.
6.4.2.2.1.1						Computer Contact Information {6.4.2.2.1.1 - OR - 6.4.2.2.1.2}	Instructions for establishing communications with the distribution computer.
6.4.2.2.1.1.1						Network Address	The electronic address from which the data set can be obtained from the distrib. computer.

6.4.2.2.1.1.1.1	O							Network Resource Name	free text
6.4.2.2.1.1.2								Dialup Instructions	Information required to access the distribution computer remotely through telephone lines.
6.4.2.2.1.1.2.1	O							Lowest BPS	Lowest BPS >= 110
6.4.2.2.1.1.2.2	O							Highest BPS	Highest BPS > Lowest BPS
6.4.2.2.1.1.2.3	O							Number DataBits	7 <= Number DataBits <= 8
6.4.2.2.1.1.2.4	O							Number StopBits	1 <= Number StopBits <= 2
6.4.2.2.1.1.2.5	O							Parity	None, "Odd", "Even", "Mark", "Space"
6.4.2.2.1.1.2.6	O							Compression Support	free text, "V.32", "V.32bis", "V.42", "V.42bis"
6.4.2.2.1.1.2.7	O							Dialup Telephone	free text
6.4.2.2.1.1.2.8	O							Dialup File Name	free text
6.4.2.2.1.2	O						Access Instructions		free text
6.4.2.2.1.3	O						Online Computer and Operating System		free text
6.4.2.2.2						Offline Option			Information about media-specific options for receiving the data set.
6.4.2.2.2.1	O						Offline Media		free text, "CD-ROM", "3-1/2 inch floppy disk", "5-1/4 inch floppy disk", "9-track tape", "4 mm cartridge tape", "8 mm cartridge tape", "1/4-inch cartridge tape"
6.4.2.2.2.2							Recording Capacity		The density of information to which data are written. Used in cases where different recording capacities are possible.
6.4.2.2.2.2.1	O							Recording Density	Recording Density > 0.0
6.4.2.2.2.2.2	O							Recording Density Units	free text
6.4.2.2.2.3	O						Recording Format		free text, "cpio", "tar", "High Sierra", "ISO 9660", "ISO 9660 with Rock Ridge extensions", "ISO 9660 with Apple HFS extensions"
6.4.2.2.2.4	O						Compatibility Information		free text
6.4.3	A			Fees					free text
6.4.4	O			Ordering Instructions					free text
6.4.5	O			Turnaround					free text
6.5	O		Custom Order Process						free text
6.6	O		Technical Prerequisites						free text
6.7			Available Time Period						The time period when the data set will be available from the distributor.
9	O			Time Period Information					Information about the date and time of an event.

7		Section 7: Metadata Reference Information		Information on the currentness of the metadata information, and the responsible party.
7.1	M	Metadata Date		free date
7.2	O	Metadata Review Date		free date; Metadata Review Date later than Metadata Date
7.3	O	Metadata Future Review Date		free date; Metadata Future Review Date later than Metadata Review Date
7.4		Metadata Contact		The party responsible for the metadata information.
10	**M**		Contact Information	ID of, and means to communicate with, person(s) and org.(s) associated with the data set.
7.5	O	Metadata Standard Name		free text, "FGDC Content Standards for Digital Geospatial Metadata"
7.6	O	Metadata Standard Version		free text
7.7	O	Metadata Time Convention		local time, "local time with time differential factor", "universal time"
7.8	O	Metadata Access Constraints		free text
7.9	O	Metadata Use Constraints		free text
7.10		Metadata Security Information		Handling restrictions imposed on the metadata because of national security, privacy, etc.
7.10.1	O		Metadata Security Classification System	free text
7.10.2	O		Metadata Security Classification	free text, "Top secret", "Secret", "Confidential", "Restricted", "Unclassified", "Sensitive"
7.10.3	O		Metadata Security Handling Description	free text
7.11		Metadata Extensions		A reference to extended elements to the standard which may be defined by a metadata producer or a user community. Extended elements are elements outside the Standard, but needed by the metadata producer. If extended elements are created, themust follow the guidelines in Appendix D, Guidelines for Creating Extended Elements to the Content Standard for Digital Geospatial Metadata.
7.11.1	O		Online Linkage	free text
7.11.2	O		Profile Name	free text
8		Section 8: Citation Information		The reference to be used for the data set, larger work, lineage, or cross reference.
8.1	M	Originator		*Oregon Department of Geology and Mineral Industries [free text]*
8.2	M	Publication Date		*[free date, "Unknown", "Unpublished material"]*
8.3	O	Publication Time		*[free time, "Unknown"]*
8.4	M	Title		*Name of the data set, larger work, lineage, or cross reference. [free text]*
8.5	A	Edition		*[free text] (VERSION)*
8.6	O	Geospatial Data Presentation Form		*["vector digital data", "raster digital data", "atlas", "diagram", "globe", "map", "model", "profile", "remote-sensing image", "section", "view"]*

8.7			Series Information	The identification of the series publication of which the data set is a part.
8.7.1	O		Series Name	*Required for larger work (i.e. Geological Map Series, Interpretive Map Series, etc.). [free text]*
8.7.2	A		Issue Identification	*Required for larger work (i.e. GMS-114, IMS-08, etc.). [free text]*
8.8			Publication Information	Publication details for published data sets.
8.8.1	O		Publication Place	*Portland, Oregon, USA [free text]*
8.8.2	M		Publisher	*Oregon Department of Geology and Mineral Industries [free text]*
8.9	**O**		Other Citation Details	*[free text]*
8.10	**A**		Online Linkage	*Required for larger work and any data set available online. [free text]*
8.11	**O**		Larger Work Citation	Nested information identifying a larger work in which the data set is included.
8			Citation Information	The reference to be used for the larger work.
9		**Section 9: Time Period Information {9.1 - or - 9.2 - or - 9.3}**		Information about the date and time of an event.
9.1			Single Date/Time	Means of encoding a single date and time.
9.1.1	**M**		Calendar Date	*MM/DD/YYYY [free date, "Unknown"]*
9.1.2	**A**		Time of Day	*12:00AM PST [free time, "Unknown"]*
9.2			Multiple Dates/Times	Means of encoding multiple individual dates and times.
9.2.1	**A**		Calendar Date	*MM/DD/YYYY [free date, "Unknown"]*
9.2.2	**A**		Time of Day	*12:00AM PST [free time, "Unknown"]*
9.3			Range of Dates/Times	Means of encoding a range of dates and times.
9.3.1	**A**		Beginning Date	*MM/DD/YYYY [free date, "Unknown"]*
9.3.2	**A**		Beginning Time	*12:00AM PST [free time, "Unknown"]*
9.3.3	**A**		Ending Date	*MM/DD/YYYY [free date, "Unknown", "Present"]*
9.3.4	**A**		Ending Time	*12:00AM PST [free time, "Unknown"]*
10		**Section 10: Contact Information {10.1 - OR - 10.2}**		Identity of, and means to communicate with, person(s) and org.(s) assoc.'d with the data set.
10.1	**O**		Contact Person Primary	The person, and the affiliation of the person, assoc.'d with the data set. Used in cases where the assoc. of the person is more significant than the assoc. of the organization to the data set.
10.1.1	**O**		Contact Person	free text
10.1.2	**O**		Contact Organization	free text
10.2	**M**		Contact Organization Primary	The organization, and the member of the org., assoc.'d with the data set. Used in cases where the assoc. of the organization is more significant than the assoc. of the person to the data set.

10.2.1	M		Contact Organization	free text
10.2.2	O		Contact Person	free text
10.3	A	Contact Position		free text, GIS Coordinator
10.4	O	Contact Address		The address for the organization or individual.
10.4.1	O		Address Type	mailing address, "physical address", "mailing and physical address"
10.4.2	O		Address	free text
10.4.3	O		City	free text
10.4.4	O		State or Province	free text
10.4.5	O		Postal Code	free text
10.4.6	O		Country	free text
10.5	M	Contact Voice Telephone		free text
10.6	O	Contact TDD/TTY Telephone		free text
10.7	O	Contact Facsimile Telephone		free text
10.8	O	Contact Electronic Mail Address		free text
10.9	O	Hours of Service		free text
10.10	O	Contact Instructions		free text