FGDC.GOV
FEDERAL GEOGRAPHIC DATA COMMITTEE

# Standards Update
# November 2016

## Contents



## FGDC

### Metadata and related standards

The FGDC Coordination Group ballot to approve INCITS/ISO 19115-1:2014[2014], Geographic information - Metadata - Part 1: Fundamentals, and INCITS/ISO 19157:2013[2014], Geographic information - Data quality, opened on September 7. It closed one September 20. CG Voting results: 7 yes; 0 no; 0 abstain; 23 not voting.

The two standards and CG voting results were submitted for final endorsement by the FGDC Steering Committee. The Steering Committee ballot closed on November 30. SC voting results: 17 Yes, 0 No; 8 No response.

## INCITS Technical Committee L1 and ISO Technical Committee 211

On September 13, the ISO/TC 211 Secretariat issued N 4365, Nomination of new chair of ISO/TC 211, for information and consideration at the ISO/TC 211 43rd plenary in Redlands, CA, 2016-12-01/02. It nominated Christina Wasström of Sweden as the new ISO/TC211 chair.

## Open Geospatial Consortium

Contact your agency's representative(s) to OGC for more information.

## Geospatial-Intelligence Standards WG (GWG)

### GWG 16-3 voting meeting

The GWG 16-3.0 Voting Session & Plenary was held October 26, 2016.

### Contact FGDC rep to GWG

For more information, contact Julie Binder Maitra, FGDC representative to GWG, or your agency's representative to GWG.

## Standards update

The benefit and use of the standards tracking workbook is under evaluation.

The standards tracking workbook (Excel) has been maintained since February 2011. There is a worksheet for each year, and within each worksheet, there are columns to track standards over the months.

The standards tracking workbook now covers 350 standards from FGDC, INCITS Technical Committee L1, ISO Technical Committee 211, OGC, and other standardization activities. The effort is very time-intensive, due to the amount of information that is collected, reviewed, and corroborated.

Publication of the standards workbook is announced through:

- Mailing lists:
  - INCITS L1
  - FGDC Standards WG
- Linkedin
  - Julie Maitra's profile (452 connections)
  - Groups
    - OGC (9682 members)
    - ISO/TC 211 (227 members)
    - FGDC Standards WG (22 members)

The FGDC Standards Program Manager requests input from people working with standards. Questions:

- Is your agency aware of the standards update resource?
- Has your agency downloaded it?

- How have you used it?
- Do you have suggestions for improving its use/effectiveness?

## Events

| Year | Month | Date(s) | Event | Location |
|---|---|---|---|---|
| **2016** | **December** | 12/04-12/08 | **OGC** | Taichung, Taiwan |
| | | 12/12-12/16 | **American Geophysical Union (AGU)** | San Francisco, California |
| | | 12/13 | **CG** | |
| **2017** | **February** | 02/13-02/14 | **Esri FedGIS Conference** | Washington, DC |
| | **March** | 03/20-03/24 | **OGC** | Delft, The Netherlands |
| | **May** | 05/29-06/02 | **ISO TC 211 Plenary and meetings** | Stockholm, Sweden |
| | **June** | 06/26-06/30 | **OGC** | St. John's, Newfoundland, Canada |
| | **July** | 07/02-07/07 | **International Cartographic Conference (ICC 2017)** | Washington, DC |
| | | 07/23-07/28 | **IEEE International Geoscience and Remote Sensing Symposium (IGARSS)** | Fort Worth, TX |

## Contact

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FGDC Standards WG: https://www.linkedin.com/groups/8243676

# FYI

## Interesting links

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **World Data System** | The ICSU World Data System promotes long-term stewardship of and universal and equitable access to quality-assured scientific data and data services, products, and information across a range of disciplines in the natural and social sciences and the humanities. | https://www.icsu-wds.org/ | |
| **Geospatial standards wiki** | The geospatial standards wiki was created by the International Cartographic Association Commission on SDI and Standards and is maintained by the Commission, ISO/TC 211 and other volunteers. | http://wiki.icaci.org/index.php?title=Standards | |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Schema.org** | Schema.org is a collaborative community activity that creates, maintains, and promotes schemas for structured data. Schema.org vocabularies may be used with many different encodings. These vocabularies cover entities and relationships and can easily be extended.<br><br>Schema.org is open and machine-readable.<br><br>For geographic coordinates, see Thing > Intangible > StructuredValue > GeoCoordinates, . http://schema.org/GeoCoordinates | http://schema.org | Schema, vocabularies, schema.org |
| **U.S. Federal Statistical System** | The U.S. Federal Statistical System spans 125 agencies that are engaged in collecting data and producing statistics. OMB's Office of Information and Regulatory Affairs (OIRA) coordinates the Nation's decentralized Federal statistical system. | http://proximityone.com/fss.htm | |
| **RDA metadata standards directory** | The Research Data Alliance (RDA) has set up a metadata standards directory on GitHub. The directory lists both the FGDC Content Standard for Digital Geospatial Metadata and ISO 19115. FGDC members might be interested in reviewing the directory for metadata standards that apply to their domains. | http://rd-alliance.github.io/metadata-directory/standards/ | |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **European Data Portal** | *The European Data Portal harvests metadata of Public Sector Information available on public data portals across European countries.*<br><br>Its catalogue of metadata is not limited to spatial information but contains records across different domains. One might find some of the Member States' geospatial data on the European Data Portal. The European Data Portal publishes spatial datasets from EU Institutions that are based on the INSPIRE data model. | http://www.europeandataportal.eu/ | |
| **INSPIRE Geoportal** | *"The INSPIRE geoportal provides the means to search for spatial data sets and spatial data services, and subject to access restrictions, view spatial data sets from the EU Member States within the framework of the INSPIRE Directive."*<br><br>INSPIRE geoportal is the central access point to the geospatial data (and metadata and services) in the EU Member States. Data referenced in INSPIRE catalogue might be open data; however, unlike the European Data Portal, much available data has restricted access rights. | http://inspire-geoportal.ec.europa.eu/ | |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Counting down to the new ampere** | This article notes that in 2018, the base units of the International System of Units (SI) are scheduled to be re-defined in terms of physical constants, with major changes in the kilogram, ampere, kelvin, and mole.<br><br>NIST gave a presentation on SI units at the February 2014 FGDC Standards WG meeting | http://www.nist.gov/pml/div684/grp02/counting-down-to-the-new-ampere.cfm | |
| **Open Geospatial Data, Software and Standards** | *Open Geospatial Data, Software and Standards provides an advanced forum for the science and technology of open data, crowdsourced information, and sensor web through the publication of reviews and regular research papers. The journal publishes articles that address issues related, but not limited to, the analysis and processing of open geo-data, standardization and interoperability of open geo-data and services, as well as applications based on open geo-data. The journal is also meant to be a space for theories, methods and applications related to crowdsourcing, volunteered geographic information, as well as Sensor Web and related topics.* | https://opengeospatialdata.springeropen.com/ | |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Future Trends in geospatial information management: the five to ten year vision, Second Edition December 2015** | The UN-GGIM documents notes that the UN is establishing a 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs) and 169 associated targets. Many targets are thematically based and geographic in nature.<br><br>It notes,<br><br>*Existing statistical standards such as SDMX contain little geographic referencing within their structure which makes it difficult to link SDMX outputs to the geographic framework they operate within. Likewise, the existing metadata standards such as ISO -19115 do not contain the elements that show integration with statistical data sets. Both the statistical and geospatial communities will need to cooperate more extensively to support a greater integration of geographic and statistical standards.* | http://ggim.un.org/docs/UN-GGIM-Future-trends_Second%20edition.pdf | UN-GGIM, Sustainable Development, statistics, metadata, geospatial |
| **Statistical Data and Metadata eXchange (SDMX)** | SDMX is an ISO standard designed to describe statistical data and metadata, normalize their exchange, and improve efficient sharing. SDMX was published as ISO 17369:2013, http://www.iso.org/iso/catalogue_detail.htm?csnumber=52500. | https://sdmx.org/ | Statistics, metadata, data exchange |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **GEO Data branding** | The GEO label provides an easily recognizable stamp for data quality. Users need to know if they can rely on the data. They will be able to rely on data branded with the GEO label. The GEO label has 10 facets, each represented by an icon.<br><br>The data management principles (DMPs) are classified in 5 categories: Discovery, Accessibility, Usability, Preservation and Curation. The Common Framework for Earth Observation Data (CFEOD), https://www.whitehouse.gov/sites/default/files/microsites/ostp/common_framework_for_earth_observation_data.pdf, incorporates the DMPs. | http://www.geolabel.info/ | Data management, data quality |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Federal Committee on Statistical Methodology (FCSM) Geospatial Interest Group (GIG)** | The FCSM is an interagency committee dedicated to improving the quality of Federal statistics. OMB created the FCSM to inform and advise OMB and the Interagency Council on Statistical Policy (ICSP) on methodological and statistical issues that affect the quality of Federal data.<br><br>The purpose of the GIG is to share information on geospatial methodologies across federal agencies; identify areas of common research; coordinate collaborative research projects in those areas; and disseminate methodological information related to geospatial data.<br><br>The GIG is gathering examples of federal practices with geographical data, classification systems, and software techniques. It is interested in expanding its contacts across federal agencies. | https://fcsm.sites.usa.gov/committees/gig/ | Statistics, FCSM, geospatial, Federal |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **ICSP \| NIST** | The purpose of the Interagency Committee on Standards Policy (ICSP) is to (1) ensure effective Federal participation in domestic and international standards and conformity assessment activities and (2) promote Federal adherence to uniform policies in development and use of standards and conformity assessment activities.<br><br>The ICSP advises the Secretary of Commerce and the heads of other Federal agencies on standards policy. Federal policies reflecting the public interest can stimulate competition, promote innovation, and protect public safety and welfare. Standards can contribute significantly to national and international prosperity, economic growth, and public health and safety.<br><br>The ICSP promotes effective and consistent standards and conformity assessment policies to advance U.S. domestic and foreign goals and, to this end, fosters cooperative participation by the Federal Government, U.S. industry, and other private organizations in standards activities and product testing, management system registration, certification, and accreditation programs. It fulfills the mandates set out in OMB Circular No. | https://www.nist.gov/standardsgov/icsp | Standards, conformity assessment, Federal, Interagency Committee on Standards Policy, ICSP, policy, OMB Circular A-119 |
| www.fgdc.gov/standards | A-119.the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities.” | | |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Cloud.gov** | cloud.gov handles technical and legal requirements common to all federal government systems, so that federal digital service teams can focus on rapidly iterating and launching applications software and applications that serve people's needs. Teams do not need to manage underlying server infrastructure.<br><br>The core of cloud.gov is a Platform as a Service (PaaS). The customer team is responsible for their custom application code, while the cloud.gov platform takes care of security and maintenance of everything underneath. All software components of the cloud.gov PaaS are open source. Because cloud.gov is based on open-source technologies, it provides portability to other cloud providers or your existing on-premise solution. It runs on top of industry-provided infrastructure (Amazon Web Services is currently the "Infrastructure as a Service" provider). It is a cost-recoverable service funded by charging fees to the teams that use it. | https://cloud.gov/ | Cloud computing, cloud.gov, Platform as a Service, PaaS, open source |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Dublin Core lite for Geo (DClite4G)** | This section Dublin Core lite for Geo (DClite4G), from the Open Source Geospatial Foundation (OSGeo) community wiki, provides a mapping from Dublin Core to ISO 19115. It appears that all Dublin Core elements map to ISO 19115 elements, though the mapping may not always be 1-to-1. Refer to the table | http://wiki.osgeo.org/wiki/Geodata_Metadata_Requirements#Dublin_Core_lite_for_Geo_.28DClite4G.29 | ISO 19115, Dublin Core, Metadata, DClite4G |
| **Data Documentation Initiative (DDI) Alliance** | The DDI Alliance establishes international metadata standards and semantic products for documenting and integrating social science data, data covering human activity, and data that result from observational methods in social, behavioral, economic, and health sciences. The freely available DDI standard facilitates interpretation and understanding of data by humans and computers.<br><br>Insofar as possible, DDI ensures compatibility with metadata standards in other fields. Special care was taken in reviewing the DDI standard and related standards and mapping the DDI standard to outside standards or incorporating content where appropriate. Curiously, DDI was mapped to ISO 19118, NOT the ISO 19115 geospatial metadata standards. | http://www.ddialliance.org/ | Metadata, social sciences, Data Documentation Initiative |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **Character Sets** | This register lists official names for character sets that may be used in the Internet and referred to in Internet documentation. The US-ASCII character set is the most commonly used character set used by the Internet and especially in protocol standards. Listed character sets include Unicode and ISO/IEC 10646 coded character sets and specification of a set of sub-repertoires that might occur. This register of names for character sets covers much more than ASCII and Unicode character sets.<br><br>The MD_CharacterSetCode element in ISO 19115-1 uses the IANA character set register as a code list.<br><br>  What are relationships among ICANN, IETF, and IANA? | http://www.iana.org/assignments/character-sets/character-sets.xhtml | IANA, ASCII, Unicode, character set, Unicode, ISO/IEC 10646 |
| **Library of Congress Boosts Digital Public Library Database with Historic Maps -- Campus Technology**<br>  | The Digital Public Library of America (DPLA) has signed an MOU with the Library of Congress to share several of its historic map collections. The DPLA allows users to search its index by timeline, map, format, subject or partner and provides them with links back to the original content site. | | Digital Public Library of America, Library of Congress, maps, historic maps |

| Name | Annotation | URL | Keywords |
|---|---|---|---|
| **In Defense of Fahrenheit**   | Celsius is "beautiful and simple and has a lot going for it, not least of which is adoption by most of the world. Kelvin has the same temperature scale as Celsius, but its zero represents absolute zero. In 2018, base units of the International System of Units (SI) are scheduled to be re-defined, with major changes for degrees Kelvin. | http://www.popularmechanics.com/science/a24093/fahrenheit-is-not-an-arbitrary-scale/ | SI, temperature, Celsius, Fahrenheit, Kelvin |
| **Disseminating the New Kilogram: An International 'Dry Run'"**   | When the kilogram, the world's basic unit of mass, gets a new definition in 2018, it will be based not on a physical artifact but a constant of nature. However, researchers will still need to "realize" the new definition, or translate it into a physical object. HT National Institute of Standards and Technology | https://www.nist.gov/news-events/news/2016/11/disseminating-new-kilogram-international-dry-run | SI, mass, weight, kilogram, Materials characterization, Mass metrology, Physics, Standards, NIST |

## Data formats

| Title | Annotation | URL |
|---|---|---|
| **M-13-13 Memorandum for the heads of executive departments and agencies: Open Data Policy-Managing Information as an Asset** | Pursuant to Executive Order of May 9, 2013, Making Open and Machine Readable the New Default for Government Information, this Memorandum establishes a framework to help institutionalize the principles of effective information management at each stage of the information's life cycle to promote interoperability and openness …<br><br>Specifically, this Memorandum requires agencies to collect or create information in a way that supports downstream information processing and dissemination activities. This includes using machine-readable and open formats, data standards, and common core and extensible metadata for all new information creation and collection efforts. | https://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf |
| **File formats** | The Open Data Workbook explains the basic concepts of 'open data', especially in relation to government. It covers how open data creates value and can have a positive impact in many different areas.<br><br>This web page identifies several file formats, but does not explicitly identify which ones are open format machine readable formats. It does not identify geospatial data formats. | http://opendatahandbook.org/guide/en/appendices/file-formats/ |

| Title | Annotation | URL |
|---|---|---|
| **Machine-readable and open file formats** | "This document (Google Docs) contains a list of file formats. The goal is to bring clarity into the differences among file formats. Which file formats can be considered machine-readable? Which ones are open and which ones are closed? And which formats can be considered both open and machine-readable?<br>… In the past we have seen that a lot of users struggle with very topic-specific file formats - especially for geographic data. The goal is also to shed light on these special cases."<br><br>GeoJSON is identified as an open machine readable format, but KML is not. GML is not even mentioned.<br><br>Users may edit this document. | https://docs.google.com/document/d/1H0JJz6432kAxCYaxghe8LkEWOq33PtY-F4AS2PuSKVQ/edit# |
| **Implementation Guidelines For National Data Sharing and Accessibility Policy (NDSAP) Ver. 2.2**<br><br>**Choosing the right format for open data** | This document from the National Informatics Centre, Government of India proposes that geospatial data should be published in GML or KML. An RFC recently concluded.<br>"When publishing this type of data, formats like GeoJSON (based upon JavaScript Object Notation - JSON) and KML (based upon Extensible Markup Language - XML) should be considered.<br><br>These formats are specifically designed with usability in mind and can easily be imported and exported from specialist mapping tools like Open Street Map and CartoDB [now CARTO]"<br><br>GML, however, is not mentioned. | https://data.gov.in/sites/default/files/NDSAP_Implementation_Guidelines_2.2.pdf<br><br>https://www.europeandataportal.eu/elearning/en/module9/#/id/co-01 |

| Title | Annotation | URL |
|---|---|---|
| **Format Descriptions for Geospatial Data** | This web page from the Library of Congress provides links to comprehensive descriptions of many geospatial data formats, including GeoJSON, GML, and KML.[1] Not all data formats listed are open data formats. | http://www.digitalpreservation.gov/formats/fdd/gis_fdd.shtml |
| **Linked Data** | Tim Berners-Lee's 5-star rating system for linked open data.<br><br>A 3-star rating means that data is available on the web (in whatever format) with an open license, as machine-readable structured data (2-star); and as a non-proprietary format.<br><br>KML, GeoJSON, and GML are all 3-star formats. 4-star includes 3-star formats; in addition, open standards from W3C (RDF and SPARQL) are used to "identify things." | https://www.w3.org/DesignIssues/LinkedData.html |
| **Semantic Web Primer** | Tutorials on Linked Data and the Semantic Web.<br><br>RDF (4-star) is the format that the semantic web uses to store data in graph databases.<br><br>OWL is the means for encoding meaning into data.<br><br>SPARQL is used to query the graph database. | http://www.linkeddatatools.com/semantic-web-basics |

[1] According to GML, http://www.digitalpreservation.gov/formats/fdd/fdd000296.shtml, GML is a language to encode geographic content, by describing application objects and their properties, while KML is a language for the visualization of geographic information tailored for Google Earth and other map and globe browsers. KML can be used to carry GML content, and GML can be "styled" to KML for presentation. KML instances may be transformed losslessly to GML; however, roughly 90% of GML's structures (such as metadata, coordinate reference systems, horizontal and vertical datums, etc.) cannot be transformed to KML.

| Title | Annotation | URL |
|---|---|---|
| **RDF 1.1 Primer** | This primer provides the reader with basic knowledge to effectively use RDF. It introduces basic concepts of RDF and shows concrete examples of the use of RDF.<br><br>RDFa can be used to embed RDF data within HTML and XML, while RDF/XML provides XML syntax for RDF graphs.<br><br>RDF may be used to add machine-readable information to Web pages such as schema.org.<br><br>The RDF 1.1 Primer identifies schema.org as a vocabulary developed by major search providers. Webmasters can use these terms to mark-up Web pages so that search engines understand what the pages are about. | https://www.w3.org/TR/2014/NOTE-rdf11-primer-20140225/ |
| **A Look at KML, an Open Standard to Represent and Visualize Spatial Information** | Yang Zhang and Matthew W. McBroom, both associate professors with Stephen F. Austin State University (TX), provide a brief systematic introduction to KML (Keyhole Markup Language) files. | https://www.gislounge.com/look-kml-open-standard-represent-visualize-spatial-information/ |
| **Simple Open Data**<br>  | According to this page:<br><br>Use GeoJSON or KML for small vector data. For larger vector data, publish as Shapefiles. GeoTIFF is good for distributing raster data. GeoPDF is not recommended because is rarely implemented and also has legal restrictions. | http://simpleopendata.com/ |

| Title | Annotation | URL |
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| **Creating machine readable data**   | This page from the Government of Western Australia states:<br><br>For data that has a geographic or location element to it, GeoJSON, CSV, KML, or GML are all good open formats for publishing. Shapefiles and TAB files should be avoided where possible due to the overly complex, proprietary, and aging nature of the formats. | http://data.wa.gov.au/fact-sheets-and-toolkit/creating-machine-readable-data |