

**Federal Geographic Data Committee
Metadata Summit Summary
October 26-27, 2011
Reston, Virginia**



Contents

FGDC Metadata Summit Summary
Appendix A – Agenda
Appendix B – Summary of Issues and Actions
Appendix C – Webinar Presentation
Appendix D – Webinar Question and Answer Session

**Federal Geographic Data Committee
Metadata Summit Summary
October 26-27, 2011
Reston, Virginia**

Introduction

The Federal Geographic Data Committee (FGDC) hosted a two day Metadata Summit on October 26-27, 2011 at the U.S. Geological Survey in Reston, Virginia to bring National Spatial Data Infrastructure (NSDI) stakeholders up to date on International Organization for Standardization (ISO) metadata standards, identify challenges, and set a course for implementation. The meeting included:

- ISO Metadata Training Workshop
- ISO and ISO North American Profile (NAP) Metadata Standards Status Update
- Group Discussions: ISO Implementation
- Group Discussions: ISO Tools and Applications
- Group Discussions: ISO Education and Communication

A follow-up Webinar meeting was held on December 7, 2011 that presented the results of the Summit to interested participants who were unable to attend the October session.

Workshop Structure

The Metadata Summit was conducted over a period of 2 days consisting of an optional ISO Metadata Training Workshop on the first day and plenary presentations and breakout group discussions on the second day (Appendix A).

The ISO Metadata Training Workshop was instructed by Jacqueline Mize and Kathy Martinolich from NOAA and reached its capacity of 25 participants. The training gave attendees the opportunity to get hands-on experience with the ISO standards, its components, and provide information on its use. Specific topics included Transitioning 101; ISO 191** Content and Organization; XML Basics; ISO 191** Content Detailed Review; Tools for Creating and Editing ISO Metadata; ISO Creation Methods; and Validation Techniques. The training workshop provided a foundation of knowledge for the second day of the Summit.

On the second day, the plenary sessions began with opening remarks from Ivan DeLoatch (Director, FGDC) and were followed by a series of presentations intended to get all participants informed about current ISO standards, tools, training, and implementation status.

Five speakers gave presentations including:

- Aleta Vienneau (ESRI) on “*ISO Standards: Status, Tools, Implementations and Training*” (on behalf of her co-author David Danko, ESRI)
- Jacqueline Mize (NOAA) on “*Applications and Tools*”
- Rob Dollison (USGS) on “*Geospatial Platform Update - Migration of GOS to Data.gov*”
- Ted Habermann (NOAA) on “*Metadata Implementation*”
- Jacqueline Mize (NOAA) on “*Training and Education*”

These presentations provided an overview of current ISO activities and led to facilitated breakout group discussions that covered each of these topics in more detail.

In the afternoon on day 2, three breakout groups, each with a specific area of focus, identified common issues and discussed recommendations for common solutions associated with their agency or organization’s approach in the context of addressing and implementing ISO metadata standards. In the original agenda, a fourth breakout group focused on the ISO standards had been identified, but participants felt they had more contributions to the other three topics, so this breakout group was dropped during the meeting. Breakout group descriptions:

1. ISO Implementation: This group focused on issues related to the integration of the ISO metadata standard into the geospatial data management and workflow. The overarching question addressed was: *Assuming that the standard is stable and tools and training are available, what workflow and management challenges do you face in transitioning your organization from the CSDGM to ISO metadata?*
2. ISO Tools and Applications: This group focused on issues related to the tools needed to effectively create, transform, validate, and publish ISO metadata. The overarching question addressed was: *What specific application capabilities are needed to support ISO metadata within your organization?*
3. ISO Education and Communication: This group focused on issues related to outreach and training required to support transitioning to ISO metadata, including: guidance documents, instructional materials, promotional materials, tutorials, websites, and training events. The overarching question addressed was: *What training and outreach resources are needed to support the transition from CSDGM to ISO metadata?*

Each breakout group’s discussion was led by a facilitator and documented by a note taker:

- ISO Implementation - the facilitator was Lynda Wayne (FGDC Office of the Secretariat / GeoMaxim) and note takers were Jennifer Carlino (USGS), Marcia McNiff (USGS), and Karen Arcamonte (COMSO, Inc./USGS);
- ISO Tools and Applications - the facilitator was Jacqueline Mize (NOAA) and the notetaker was Kathy Martinolich (NOAA);
- ISO Education and Communication - the facilitator was Viv Hutchison (USGS) and the notetaker was Hugh O’Connor (COMSO, Inc./USGS).

The breakout groups each prepared and presented a report of their findings and recommendations at the end of each day, and their notes and reports were also submitted to the workshop organizers. This information is included in this final Metadata Summit Summary document.

An ISO Metadata Training Workshop Evaluation Form was distributed to all participants at the end of Day 1. A Metadata Summit Evaluation Form was distributed to all participants at the end of Day 2.

Metadata Summit Participation

The Metadata Summit was attended by a total of 52 participants that represented a diverse array of organizational affiliations including:

Federal Agencies

Bureau of Ocean Energy Management (BOEM) - 4
Census Bureau
Department of Defense - Defense Installation Spatial Data Infrastructure (DISDI) Program
Department of Homeland Security (DHS)
Department of Transportation (DOT)
Environmental Protection Agency (EPA)
Federal Aviation Administration (FAA)
Federal Geographic Data Committee (FGDC) – 4
Forest Service (USDA)
Housing and Urban Development (HUD)
Library of Congress
National Geospatial Intelligence Agency (NGA)
National Oceanic and Atmospheric Administration (NOAA) - 9
National Park Service (NPS) - 2
Natural Resources conservation Service (NRCS)
U.S. Geological Survey (USGS) - 9
U.S. Army Corps of Engineers (USACE)

Non Federal Organizations

CIESIN, Columbia University
ESRI - 3
Innovative Solutions International - 2
New Jersey Office of Information Technology
Rahall Transportation Institute
The SI Organization
Valtus Imagery Services
Westat

Workshop Metadata Summit Evaluation

The FGDC received a 55% response rate to the workshop evaluation with 29 workshop evaluation forms submitted by participants.

Audience Assessment indicated high satisfaction for:

- Summit as a good forum to communicate about ISO implementation
- Quality of presentations (informative and good foundation for discussion)
- Breakout groups well facilitated
- Opportunity to express opinions and ask questions
- Information will aid in job performance
- Learning from other agencies and organizations

Overall, three main themes were identified in the evaluations:

- Overall recognition that Federal agencies should be moving to ISO now
- Participants saw value in implementation of ISO on a larger scale
- High interest in seeing another Summit offered within 6 months to 1 year

Suggestions for future ISO Metadata Summits or forums included focusing on very specific topics rather than general categories, coming up with actionable tasks in the workshop, having more time in the breakout groups for discussion, possibly offering an online attendance option, and ensuring there are fewer people in each break out group to stimulate discussion.

ISO Metadata Training Evaluation

For the ISO Metadata Training Workshop, NOAA received a 75% response rate to the workshop evaluation with 22 workshop evaluation forms submitted by participants.

Overall, the training workshop improved the participants understanding of the similarities and differences between the Content Standard for Digital Geospatial Metadata (CSDGM) and ISO, as well as communicated about where to find assistance in creating ISO metadata. Participants felt they needed additional time to be able to write ISO compliant metadata, but the training helped them learn about tool availability, XML basics, and provided the opportunity to do hands on exercises.

Suggestions for future ISO metadata training workshops included the preference of attendees to have 1 computer per student, access to best practices, and more tips for writing compliant ISO metadata.

Metadata Summit Follow Up Webinar

A Metadata Summit Webinar meeting was held on December 7, 2011 to present results of the Summit to interested participants who were unable to attend the October session. Approximately 175 people registered for the Webinar with capacity for 100 attendees. Webinar organizers presented an overview of the Metadata Summit that was held on October 26-27, 2011 in Reston, Virginia. A recording of the Webinar is available on the FGDC Web site (http://www.fgdc.gov/metadata/events/metadata-summit/index_html). The presentation can be found in Appendix C. After the presentation, several questions from the participants were addressed and a summary of those comments are included in Appendix D.

Conclusion

The Metadata Summit brought together stakeholders from across the Federal Geographic Data Committee community to learn more about ISO metadata standards, tools, and implementation as well as to identify specific challenges and potential recommendations for moving forward. This Metadata Summit Summary and the attached consolidated recommendations provide a foundation for FGDC agencies and affiliated organizations to begin addressing ISO implementation.

Acknowledgements

The planning team consisted of several agency representatives from across the country who worked together to develop the agenda, conduct ISO metadata training, facilitate breakout group discussions, coordinate logistics, present the results at the webinar, and submit this summary to the FGDC Office of the Secretariat. In alphabetical order:

Jennifer Carlino, USGS (co-lead)

Viv Hutchison, USGS (co-lead)

Jacqueline Mize, NOAA

Brigitta Urban-Mathieux, FGDC Office of the Secretariat

Lynda Wayne, FGDC Office of the Secretariat / GeoMaxim

Appendix A
Agenda

FGDC



Metadata Summit

Thursday, October 27, 2011
Dallas Peck Auditorium
USGS National Center
Reston Virginia

Purpose

To cooperatively determine a course of action for moving forward with ISO metadata implementation

Goals

- Establish a common understanding about ISO metadata initiatives and implementation
- Determine mutually significant metadata issues best addressed with a common strategy
- Develop a course of action that includes alternate paths for achieving common strategic objectives

Outcomes

- Written report on the Summit (discussion topics, decisions, and recommendations)
- Follow-up webinar summarizing meeting outcomes for those unable to attend the Summit

Agenda

Time	Topic	Lead:
8:30-9:00	<i>Welcome</i> <i>Introductions</i> <i>Overview and Agenda</i>	Ivan DeLoatch Vivian Hutchison Jennifer Carlino
ISO Standards: Status, Tools, Implementations, and Training		
9:00-9:20	ISO Standards <i>Overview and status</i> <ul style="list-style-type: none">• 19115-1 - Metadata• Related ISO Standards• North American Profile (NAP)	David Danko
9:20-9:30		Q&A
9:30-9:50	Applications <i>What tools are available?</i> <ul style="list-style-type: none">• Transform• Edit• Validate• Publish	Jacqueline Mize Robert Dollison
9:50-10:00		Q&A
10:00-10:15	BREAK	

10:15-10:35	Implementation <i>How are organizations applying ISO standards; to what benefit?</i> <ul style="list-style-type: none"> • 19115-1 - Metadata • 19119-2 – Imagery & Gridded Data • Other 	Ted Habermann
10:35-10:45		Q&A

ISO Standards: Status, Tools, Implementations, and Training (*continued*)

10:45-11:05	Training <i>What training and outreach resources are available?</i> <ul style="list-style-type: none"> • Guidance Docs • Presentations • Workshops and Materials • Online Lessons 	Jacqueline Mize
11:05-11:15		Q&A
11:15-11:30	Explanation of Breakout Groups	Vivian Hutchison
11:30 - 12:30	LUNCH	on your own USGS Cafeteria

Discussion of Metadata Issues: Breakouts

12:30-1:45	Identification of Common Issues <i>What are the challenges and opportunities?</i>	Standards (Carlino) Applications (Mize) Implementation (Wayne) Education (Hutchison)
1:45-2:45	Recommendations for Common Solutions <i>How do we address each issue?</i>	Standards (Carlino) Applications (Mize) Implementation (Wayne) Education (Hutchison)
2:45-3:00	BREAK	
3:00-4:15	Summary of Challenges and Solutions Discussion	Group Reports
4:15-4:30	Setting the Course: Next Steps Closing and Adjourn	Vivian Hutchison & Jennifer Carlino

Contacts

Jennifer Carlino
USGS Core Science Analytics
and Synthesis
jcarlino@usgs.gov

Dave Danko
ESRI GIS Standards
ddanko@esri.com

Rob Dollison
USGS National Geospatial Program
rdollison@usgs.gov

Ted Habermann
NOAA National Geophysical Data Center
Ted.Habermann@noaa.gov

Vivian Hutchison
USGS Core Science Analytics
and Synthesis
vhutchison@usgs.gov

Jaci Mize
Radiance Technologies / NOAA Coastal
Data Development Center
Jacqueline.Mize@noaa.gov

Brigitta Urban-Mathieux
Federal Geographic Data Committee
burbanma@usgs.gov

Lynda Wayne
GeoMaxim / Federal Geographic
Data
Committee
Lynda@GeoMaxim.com

ISO Metadata Training Workshop Agenda

Topics covered in Day 1“Transitioning to ISO” Training:

- Transitioning 101
- ISO 191** Content and Organization
- XML Basics
- ISO 191** Content Detailed Review
- Tools for Creating and Editing ISO Metadata
- ISO Creation Methods
- Validation Techniques

FGDC Metadata Summit



Thursday, October 27, 2011
Dallas Peck Auditorium
USGS National Center
Reston Virginia

Workshop Summary of Issues and Actions

During the FGDC Metadata Summit on October 27, 2011, participants gathered together in groups to discuss a variety of broad topics related to the ISO standards including standards, applications and tools, implementation, and education and training. The following is a summary of the issues, solutions, and actions generated by the breakout groups.

Policy and Guidance Issues

Issue: Currently, there is uncertainty in agencies about which standard to choose: FGDC or ISO			
As the ISO standard undergoes review and is not yet finalized with changes, organizations writing policy and launching programs or projects that need documentation guidelines immediately are faced with a question of which standard to select.			
Solution	Actions	Lead	Time Frame
Provide current guidance as to which geospatial metadata standard(s) should and can be used	Develop an ISO implementation guidance statement that encourages and supports exploration and implementation of ISO metadata	FGDC Metadata Coordinator with FGDC Member Agencies	< 6 months
	Update the ISO implementation guidance at the FGDC Metadata website with the revised statement	FGDC Metadata Coordinator	< 6 months
Solution	Actions	Lead	Time Frame
Offer situational "use cases" and workflow solutions (i.e., decision tree)	Research different types of use cases in agencies with varying missions and goals	FGDC Member Agencies	< 6 months
	Develop use cases for variety of situations (e.g., here is a situation, and here is how you can deal with it and provide very specific advice for specific situations, considering "user stories.")	FGDC Member Agencies	6 -12 months
	Develop clear and simple guidance documents (including FAQs) to address each of the situations	FGDC Members Agencies	>12 months

Issue: Organizations need a compelling case for ISO metadata implementation

Change requires time, effort and money. The benefits of ISO metadata must be documented and demonstrated to aid agencies in realizing the value of transitioning to ISO metadata. There are also many different scenarios in transitioning a large federal or non-federal agency to the ISO standard, particularly when the FGDC standard is engrained in various workflows. The easier the process, the more effective and efficient the transition. Resources are needed to support organizations in making the transition to ISO metadata.

Solution	Actions	Lead	Time Frame
Highlight and demonstrate the benefits of ISO metadata to agency Directors, managers and staff. This approach can also be applied to non-federal organizations.	Compile and present benefits specifically supported by the ISO standard (e.g. ability to document services, reusable content) and the process of transition (e.g. opportunity to review/clean up metadata holdings)	An FGDC Member Agency	6-12 months
	Develop a business case that demonstrates the operational advantage of ISO and how ISO metadata can be used as a data management and metadata assessment tool, e.g. NOAA metadata completeness rubric	An FGDC Member Agency	6- 12 months
	Sponsor and promote the development of some 'Killer App' - ISO metadata demonstration projects, e.g. alternative presentations of metadata as documentation to show multiple views/uses of the same metadata record	FGDC Coordination Group	6-12 months
Solution	Actions	Lead	Time Frame
Tie ISO metadata implementation to the organization's mission and/or activities	Identify ISO metadata features that can be tied to the general mission of geospatial organizations (e.g. data sharing)	An FGDC Member Agency	6-12 months
	Identify ISO metadata features that can be tied to key initiatives (e.g. Geospatial Platform)	FGDC Secretariat	6-12 months
Solution	Actions	Lead	Time Frame
Develop other ISO implementation guidance documents and online resources	Compile and present ISO best practices; transform strategies (key post-transform edits, etc.); implementation strategies (transform once, legacy metadata, etc.); and workflows (NOAA spirals, etc.).	FGDC Metadata Coordinator & Metadata Working Group	6-12 months

Issue: Organizations need a compelling case for ISO metadata implementation (cont'd)			
Solution	Actions	Lead	Time Frame
Workflow guidance	Develop workflow guidance for creating ISO records, metadata templates and importing FGDC or earlier format records and batch import/export of records, including guidance specific to ESRI catalog records	FGDC Metadata Working Group	Six months
	Develop a user-friendly reference to the ISO standard, e.g. online, interactive resource	FGDC Metadata Coordinator & Metadata Working Group	6-12 months
	Establish an ISO metadata transformation and implementation consultation service	OMB, Each Agency &/or Private Sector	6-12 months
	Research and create FAQs for transitioning to ISO	FGDC Metadata Coordinator & Metadata Working Group	6-12 months
Solution	Actions	Lead	Time Frame
Develop guidance on building an agency profile	Identify or develop an ISO 191** overview that indicates the content and value of each standard	An FGDC Member Agency	> 1 year
	Solicit agencies on CSDGM customizations and custom content to be preserved in ISO including agency specific data quality requirements	FGDC Coordination Group	> 1 year
	Produce guidance (doc or online resource) that incorporates and addresses items above of the above	FGDC Metadata Coordinator	> 1 year
	Outline Agency-specific requirements of and procedures for profile development	Each FGDC Member Agency	> 1 year
Solution	Actions	Lead	Time Frame
Develop a registry of Agency profiles	Develop registry form to effectively describe profile content and rationale	FGDC Metadata Coordinator & Webmaster	> 1 year
	Publish and promote the registry	FGDC Coordination Group	> 1 year

Issue: Need to develop ISO metadata implementation directives			
Organizations need management and higher level executive support to implement ISO metadata.			
Solution	Actions	Lead	Time Frame
Draft and promote federal language specific to ISO metadata implementation	Draft a federal directive that identifies a common strategy towards ISO metadata implementation	FGDC Coordination Group	< 6 months
	Draft federal grant and contract language for ISO compliant metadata deliverables	FGDC Coordination Group	6-12 months
	Promote ISO implementation directive for endorsement by OMB or other federal administrative body	FGDC Executive Committee	< 6 months
Solution	Actions	Lead	Time Frame
Draft and promote ISO metadata implementation directive model language for use by non-federal organizations	Draft model non-federal directive language (that includes performance measure criteria)	NSDI Stakeholder organizations (NSGIC, URISA, etc.) or NGAC	> 1 year
	Draft model non-federal policy language	NSDI Stakeholder organizations (NSGIC, URISA, etc.) or NGAC	> 1 year
	Draft model non-federal contract language for deliverables	NSDI Stakeholder organizations (NSGIC, URISA, etc.) or NGAC	> 1 year

Issue: Provide incentives and resources for transition to ISO metadata

In addition to directives, incentives should also be developed to encourage ISO metadata implementation.

Solution	Actions	Lead	Time Frame
Include ISO metadata creation in performance plans and other metrics.	Review existing agency performance plans and metrics and incorporate ISO metadata implementation where effective	Each FGDC Member Agency	> 1 year
	Promote ISO metadata implementation during performance and metric planning	FGDC Coordination Group	> 1 year
Solution	Actions	Lead	Time Frame
Provide the training, time, tasking and resources needed to implement the new standard	Include ISO metadata training, and software application expenses during budgeting	Each FGDC Member Agency	6-12 months
	Include ISO metadata creation in position descriptions and outcomes	Each FGDC Member Agency	6-12 months
	Include ISO metadata time and effort during project planning and tasking to address upgrades and changes to ISO	Each FGDC Member Agency	6-12 months
Solution	Actions	Lead	Time Frame
Include as a maturity model component	Identify specific maturity model components that should address ISO metadata, e.g. quality assurance, requirements management, project management, availability management, data collection, etc.	An FGDC Member Agency	> 1 year
	Develop model ISO metadata language for each relevant maturity model component	An FGDC Member Agency	> 1 year
	Publish and make model language available	FGDC Metadata Coordinator and Webmaster	> 1 year

Tools and Applications Issues

Issue: Need Comprehensive User-Friendly Tools and Stable Standards			
There is a lack of comprehensive / user-friendly tools for cataloging/publishing, editing, translating, validation, and approval. Also, schema development is not parallel with standards and stable schemas are needed for tool development and publishing records.			
Solution	Actions	Lead	Time Frame
Develop applications (editors, transformation, validation, publication) to support ISO implementation (AKA 'get the technology done so the people can do the work')	Establish a nonproprietary, free, simple to use, online ISO metadata editor as a Geospatial Platform shared service	An FGDC Member Agency(ies)	> 1 year
	Develop an ISO online reference resource that enables user access to ISO metadata element and content descriptions without copyright restrictions	FGDC Metadata Program	6-12 months
Solution	Actions	Lead	Time Frame
Update tool review by vendors	Provide desired requirements list for vendors	FGDC Metadata Working Group	6-12 months
	Capabilities specific	FGDC Metadata Working Group	6-12 months
Solution	Actions	Lead	Time Frame
Need vendors (e.g., ESRI) to fully support ISO standards	Work with vendors	FGDC Metadata Working Group	6-12 months
Solution	Actions	Lead	Time Frame
UML needs to be finalized and stable	Volunteer to review standards documents and promote schema development	FGDC Metadata Working Group	< 6 months
Solution	Actions	Lead	Time Frame
Have geodata.gov provide ISO 19115-2 support	Work with geodata.gov and Geospatial Platform developers	FGDC Member Agency	< 6 months
	Document data.gov ISO metadata publication capabilities and process	Data.gov/geodata program	< 6 months
	Identify ISO metadata publication options for the non-federal community	Data.gov/geodata program	6-12 months
Solution	Actions	Lead	Time Frame
Put records into a repository	Geonetwork is an option for harvesting and publishing or use a CSW for your repository	FGDC Member Agency	< 6 months

Education and Communication Issues

Issue: Need qualified ISO trainers

Currently there are not many qualified ISO trainers available. Need to develop an ISO trainer cadre to broaden availability of ISO training.

Solution	Actions	Lead	Time Frame
Develop an ISO metadata trainer program	Establish ISO train the trainer metadata workshop curriculum	FGDC Metadata Coordinator & Trainers	6-12 months
	Establish ISO train the trainer metadata online training materials to support curriculum	FGDC Metadata Coordinator & Trainers	6-12 months
	Offer train the trainer workshops to get current FGDC trainers up to speed on ISO	FGDC Metadata Coordinator & Trainers	6-12 months
	Host 2-3 workshops per year	FGDC Metadata Coordinator & Trainers	< 1 year

Issue: Offer training in different formats

In this tight budget and travel limited environment, there is a need for training to be offered in different formats to reach a wide audience.

Solution	Actions	Lead	Time Frame
Offer live webinars	Develop webinars to different learning levels	FGDC Metadata Coordinator & Trainers	6-12 months
	Host webinars on quarterly (or other determined) schedule	FGDC Metadata Working Group	6-12 months
Offer recorded training sessions where users can attend on their own schedule	Record training sessions	FGDC Metadata Coordinator & Trainers	6-12 months
	Host webinars online	FGDC Metadata Coordinator & Trainers	6-12 months
Continue to offer classroom training.	Develop and host classroom training	FGDC Metadata Coordinator & Trainers	6-12 months
Online Help Hours	Offer online help (chat, etc.) during certain office hours	FGDC Metadata Coordinator & Trainers	> 1 year

Issue: Develop ISO training for a variety of user audiences

There is a need for training to address different types of audiences that covers more people in different kinds of roles. Training also needs to incorporate other tools beyond XML editors to address a variety of user's needs.

Solution	Actions	Lead	Time Frame
Develop a ISO metadata training program based on 3-tiered approach (Beginner, Intermediate, Advanced)	Establish ISO metadata workshop curriculum	FGDC Metadata Coordinator & Trainers	6-12 months
	Establish ISO metadata online training materials to support curriculum	FGDC Metadata Coordinator & Trainers	6-12 months
	Develop training for ISO beginners	FGDC Metadata Coordinator & Trainers	6-12 months
	Develop training for ISO intermediates	FGDC Metadata Coordinator & Trainers	6-12 months
	Develop training for ISO advanced	FGDC Metadata Coordinator & Trainers	6-12 months
Solution	Actions	Lead	Time Frame
Consider work roles when designing training: "Role-based training"	Devise list of different role types in federal agencies who would be doing ISO metadata	FGDC Metadata Coordinator & Trainers	6-12 months
	Tailor training materials to address each different role	FGDC Metadata Coordinator & Trainers	6-12 months
Solution	Actions	Lead	Time Frame
Offer "certified metadata expert" labels to those completing a certain level of training.	Develop certified ISO metadata creator certificates for intermediate and advanced training sessions	FGDC Metadata Coordinator & Trainers	6-12 months
	Offer training at the university student level	FGDC Metadata Coordinator & Trainers	> 1 year
	Advertise trainers through FGDC website	FGDC Metadata Coordinator & Trainers	6-12 months
Solution	Actions	Lead	Time Frame
Offer step by step guidance for use of non XML editor tools	Choose 2-3 GUI-based tools and develop guidance for those tools, once they are mature	FGDC Metadata Coordinator & Trainers	> 1 year
	Create easy to use materials for each tool	FGDC Metadata Coordinator & Trainers	> 1 year

Issue: Need the ability to learn from and build upon existing implementation efforts and resources

Valuable lessons have been learned by those leading ISO implementation. A mechanism is needed for cross agency collaboration and sharing lessons learned, best practices, resources developed, workflow strategies, agency profiles of ISO, etc.

Solution	Actions	Lead	Time Frame
Establish an ISO metadata implementation wiki workspace	Create (or enhance existing NOAA wiki) to support features listed in issue description (best practices, workflows, resources, etc.)	NOAA or other FGDC Member Agency	< 6 months
	Establish wiki management responsibilities	NOAA or other FGDC Member Agency	< 6 months
	Promote wiki participation	FGDC Coordination Group	< 6 months
Solution	Actions	Lead	Time Frame
Regular webinars that feature ISO implementation efforts & outcomes	Organize and manage regular webinars	FGDC Metadata Working Group	< 6 months
Solution	Actions	Lead	Time Frame
Reuse existing tools and training	Make available training opportunities via the wiki or FGDC website	FGDC Metadata Working Group	< 6 months
Solution	Actions	Lead	Time Frame
Communication/better understanding of standards process	Create mailing list to distribute updates	FGDC Metadata Working Group	< 6 months



FGDC Metadata Summit Webinar Presentation

December 7, 2011



Overview of the FGDC Metadata Summit 2011

Summit Planning Committee

- Viv Hutchison, USGS
- Jacqueline Mize, NOAA
- Lynda Wayne, FGDC Office of the Secretariat
- Jennifer Carlino, USGS
- Brigitta Urban-Mathieux, FGDC Office of the Secretariat



FGDC Metadata Summit Overview

- **Dates: October 26-27, 2011**
- **Location: USGS Headquarters (Reston, VA)**
- **Purpose: To cooperatively determine a course of action for moving forward with ISO metadata implementation**

- **Day 1: ISO Training (optional) – 25 participants**
- **Day 2: Metadata Summit – 52 participants**



Summit Participant Affiliations

- BOEM
- Census
- DHS
- DOT
- EPA
- FAA
- FGDC
- Forest Service
- HUD
- Library of Congress
- NGA
- NOAA
- NPS
- NRCS
- USGS
- USACE
- CIESIN, Columbia University
- ESRI
- DISDI Program
- Innovative Solutions International
- NJ Office of Information Technology
- Rahall Transportation Institute
- The SI Organization
- Valtus Imagery Services
- Westat



Overview of Summit Agenda (Day 1)

“Transitioning to ISO” Training:

- Transitioning 101
- ISO 191** Content and Organization
- XML Basics
- ISO 191** Content Detailed Review
- Tools for Creating and Editing ISO Metadata
- ISO Creation Methods
- Validation Techniques



Overview of Summit Agenda (Day 2)

- **Presentations on Status of ISO...**
 - ISO Standards: Status, Tools, Implementations, and Training: Aleta Vienneau, ESRI
 - Applications and Tools: Jacqueline Mize, NOAA
 - Geospatial Platform Update - Migration of GOS to Data.gov: Rob Dollison, USGS
 - ISO Metadata Implementation: Ted Habermann, NOAA
 - Training and Education: Jacqueline Mize, NOAA
- **Breakout Group Discussions**



Metadata Summit: Overview of Presentations



FGDC Endorsed Standards

FGDC Policy on Recognition of Non-Federally Authored Geographic Information Standards and Specifications

November 2005

IV. LEVELS OF RECOGNITION:

This policy establishes two levels of FGDC recognition for non-Federally authored standards and specifications:

Endorsement – The non-Federally authored standard or specification has the same status as that of an FGDC developed standard, i.e., its use by Federal agencies is mandatory.

Recommendation – The non-Federally authored standard or specification is recognized as useful for geographic data capture, exchange, archiving, and/or processing but is not deemed to be of such broad applicability that its use should be made mandatory. The FGDC shall publicize it and encourage its use, but will not require its use by Federal agencies.

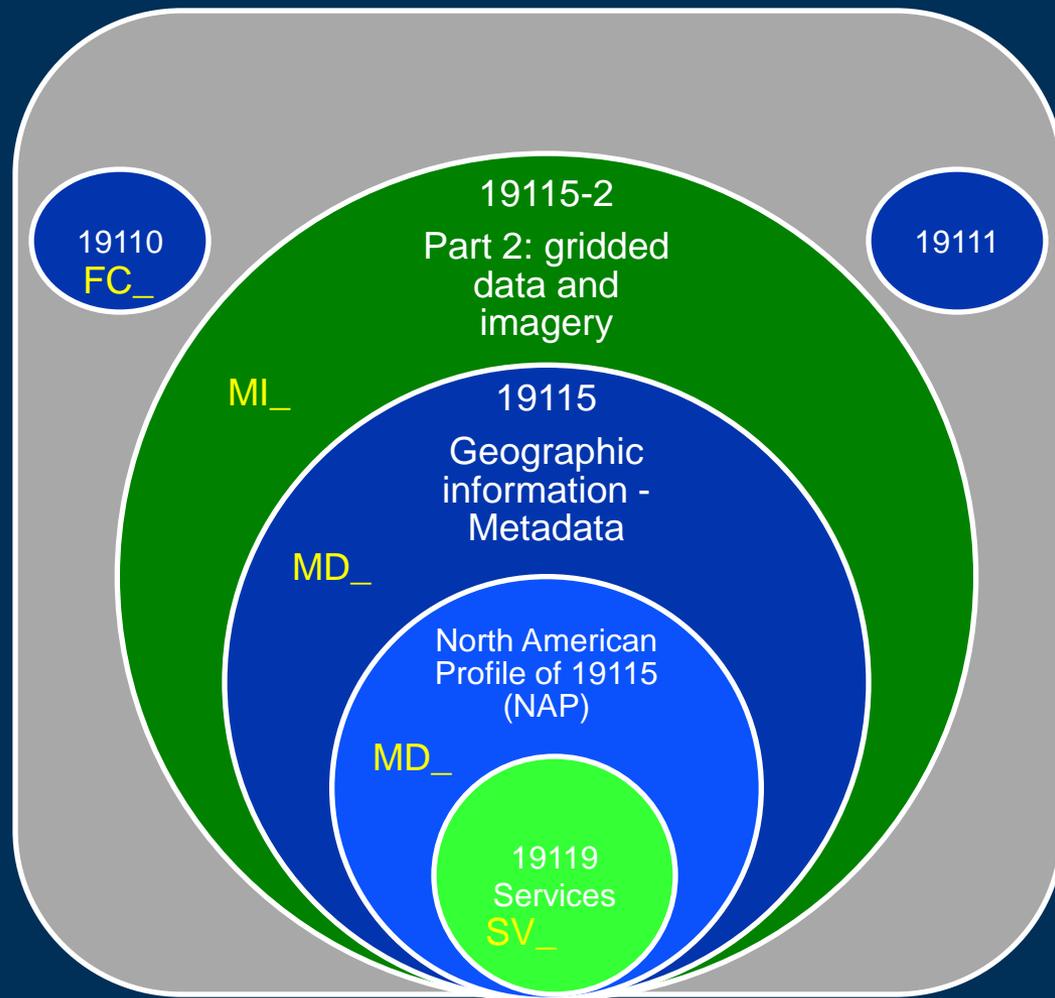
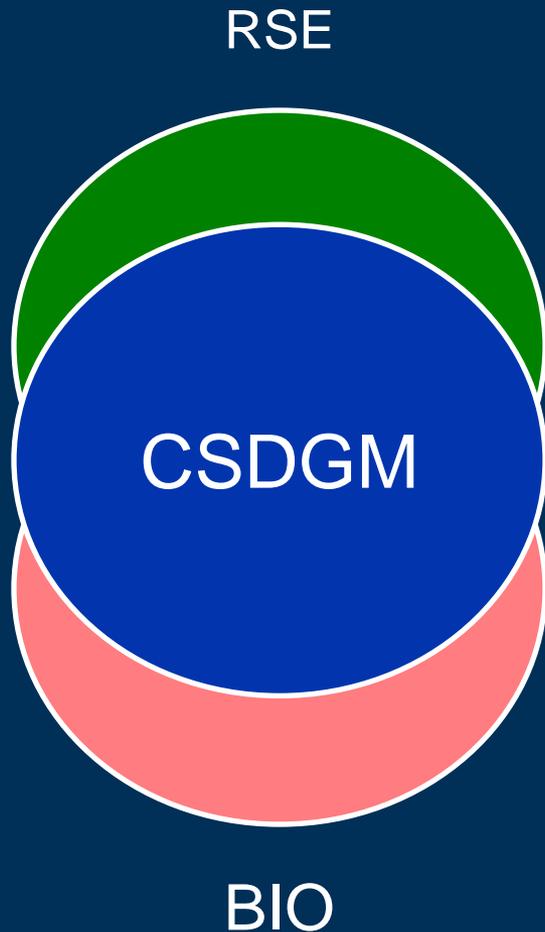
Note that in accordance with OMB Circular A-119 this policy does not establish a domestic versus international preference relative to the origin of a candidate voluntary consensus standard or specification.



FGDC Endorsed Standards

- **ISO 19110:2005** Geographic information - Methodology for Feature Cataloguing
- **ISO 19111:2007** Geographic information – Spatial referencing by coordinates
- **ISO 19115:2003** Geographic information – Metadata
- **ISO 19115-2:2009** Geographic information – Metadata – Part 2: Extensions for imagery and gridded data
- **ISO 19119:2005** Geographic information – Services
- **ISO 19139:2007** Geographic information – Metadata – XML schema implementation
- **INCITS 453-2009** Information technology – North American Profile of ISO 19115:2004 – Geographic information – Metadata (NAP – Metadata)

Comparing FGDC and ISO



ISO 19115 → FGDC CSDGM (FGDC-STD-001-1998)
ISO 19115-2 → FGDC Remote Sensing Extensions (RSE) (FGDC-STD-012-2002)
ISO 19110 → FGDC CSDGM Section 5 (Entity & Attribute Info)
ISO 19111 → FGDC CSDGM Section 4 (Spatial Reference Info)





Status of the Standards

- **ISO 19115-1 is now a DIS (Draft International Standard)**
 - Includes Feature Catalogue (ISO 19110) internal to the document
- **ISO 19157 is approved DIS (Data Quality)**
 - Will pull Data Quality out and into a separate document that can be referenced
- **Schema work is currently underway**
 - ISO 19139-2 approved DIS (for use with 19115-2)
 - New schemas in development for 19115-1



Applications

- **Variety of Tools Available**
 - **Transforms**
 - FGDC to ISO
 - Other standards to ISO
 - Stylesheets for display
 - **Editors**
 - Many capabilities available
 - **Validators**
 - Online validation
 - Schema and schematron validation

Applications

Tool Name	Open-source	GUI	Web-based	Desktop	Platform Independent	Multilingual	Supported Standards											Validation	
							FGDC CSDGM	FGDC Bio	FGDC RSE	FGDC Shore	ISO 19139	ISO 19115	ISO 19115 2	ISO 19110	ISO 19119	ISO Bio	ISO XML Attributes		other
MERMAid	*	*	*		*		*	*	*	*		*	*		*		*		*
CatMDEdit	*	*		*	*	*	*			*	*			*				*	*
GeoNetwork	*	*		*	*	*	*			*	*	*	*	*			*	*	*
GeoPortal	*	*	*		*		*	*	*	*	*	*		*					*
ISOMorph		*	*		*					*		*					*		*
XMLSpy				*			*	*	*	*	*	*	*	*	*	*	*	*	*
oXygen				*			*	*	*	*	*	*	*	*	*	*	*	*	*

Tool Name	Views			Transform Engine (2.0)	Common Catalog Search	Record Management	Ingest records		Export records		Automatic generation
	Text	xml	html				single	batch	single	batch	
MERMAid	*	*	*	*		*	*		*		
CatMDEdit		*	*			*	*		*		*
GeoNetwork		*	*		*	*	*	*	*	*	
GeoPortal		*	*		*	*	*	*	*	*	
ISOMorph		*									
XMLSpy	*	*	*	*			*	*	*	*	
oXygen	*	*	*	*			*	*	*	*	

Tool Updates since Summit

- Transforms
- ESRI
- Intergraph

Tool Updates since Summit

- **Transforms**

- **November 2011 Updates**

- Added other domain values to the value map between geographic coordinate units and resolution scale uom. Previously only "Decimal degrees" would map.
 - <http://www.ncddc.noaa.gov/metadata-standards/metadata-xml/>

Tool Updates since Summit

- **ESRI Geoportal**

- XML attributes can be configured
- Auto populated fields can be configured and edited
- WMS and OpenStreetMap search map support
- Schematron validation support
- Harvesting enhancements

portal@esri.com



Tool Updates since Summit

■ Intergraph Catalogue

- SDI-Pro server product has GUI for simple record create/view/edit/publish workflows, but the “meat” of the platform is its Catalogue API, which is deployed as part of the CSW Service which SDI-Pro users can stand up, and in multiple custom products.
- Flexibility to implement multilingual ISO-based profiles
- Other aspects - can establish user groups, each with its own set of privileges for record view/edit/publish and re-usable elements

Tool Updates since Summit

Intergraph Catalogue Utilities, v1.0.3

Tool Name	Open-source	GUI	Web-based	Desktop	Platform Independent	Multilingual	Supported Standards												Validation
							FGDC CSDGM	FGDC Bio	FGDC RSE	FGDC Shore	ISO 19139	ISO 19115	ISO 19115-2	ISO 19110	ISO 19119	ISO Bio	ISO XML Attributes	other	
Intergraph Catalogue		•		•		•	1	2	2	2	•	•	•	•	•		•	•	•
1. Can import FGDC.XML into the database, and can serve those records through the CSW service of the SDI-Pro product, responding to standard OGC queries 2. The XSLT which controls FGDC import can be utilized, or can be modified/enhanced to map additional FGDC profile elements into ISO-19139 or a custom ISO-based schema.																			

Tool Name	Views			Transform Engine (2.0)	Common Catalog Search	Record Management	Ingest records		Export records		Automatic generation
	Text	xml	html				single	batch	single	batch	
Intergraph Catalogue		•			•	•	•	•	•	•	

Contact:
 Bruce Westcott
bruce.westcott@intergraph.com



Data.gov Updates

- Data.gov plans to support ISO metadata in the future
- All current FGDC records are available and accessible in geoplatform.gov
- Contact geodata@usgs.gov with questions



Prepare to Publish ISO Metadata

- Publishing ISO records via Web Accessible Folder (WAF)
 - accessed by users with a web browser
 - indexed by Google and other search engines
 - Harvested freely available utilities

Index of /oer-waf/ISO/Resolved/2011/

../			
AtlanticCanyons2011 COLLECTION RESOLVED.html	10-Nov-2011 22:16	103863	
AtlanticCanyons2011 Collection Level resolved.xml	10-Nov-2011 22:16	168183	
EX1101 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	137262	
EX1101 COLLECTION RESOLVED.html	10-Nov-2011 22:16	71559	
EX1102 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	160309	
EX1102 COLLECTION RESOLVED.html	10-Nov-2011 22:16	94943	
EX1103 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	152140	
EX1103 COLLECTION RESOLVED.html	10-Nov-2011 22:16	106942	
EX1104 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	176161	
EX1104 COLLECTION RESOLVED.html	10-Nov-2011 22:16	101931	
EX1105 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	136557	
EX1105 COLLECTION RESOLVED.html	10-Nov-2011 22:16	77145	
EX1106 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	142842	
EX1106 COLLECTION RESOLVED.html	10-Nov-2011 22:16	76260	
MaritimeMaya2011 COLLECTION RESOLVED.XML	10-Nov-2011 22:16	47610	
MaritimeMaya2011 COLLECTION RESOLVED.html	10-Nov-2011 22:16	28380	

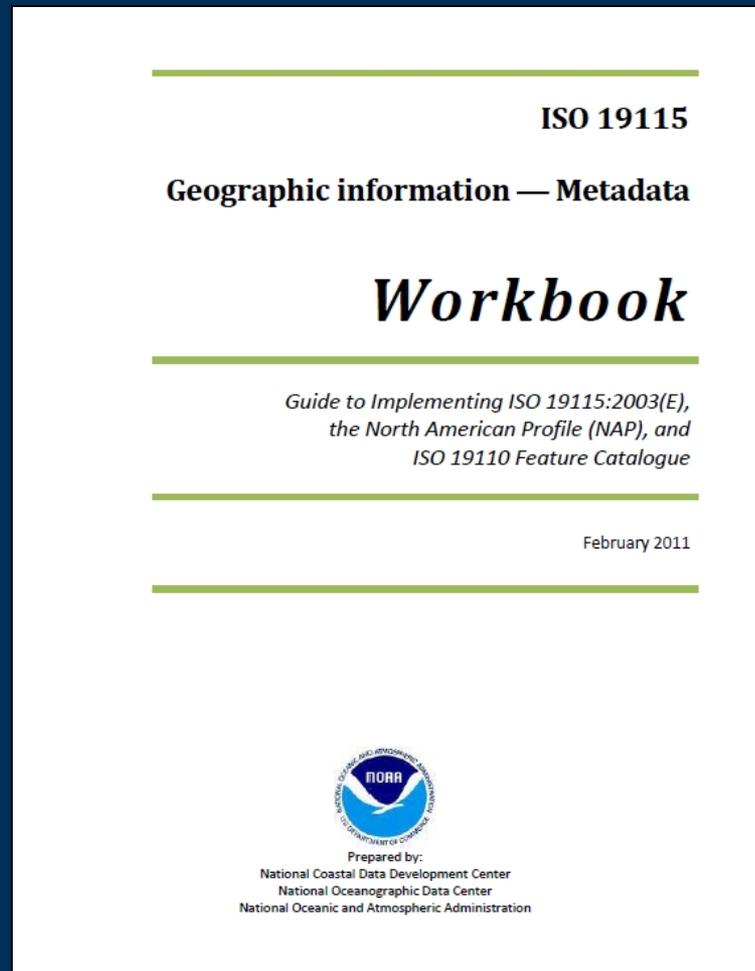
Implementation

- The standards are stabilizing
- Tools are continuing to emerge
- Several agencies have moved forward with ISO
 - NOAA
 - NGA

#	Title	File Identifier	View ISO as:	Export XML as:
1	Age, spreading rates, and spreading asymmetry of the world's ocean crust ★★★★★	gov.noaa.ngdc.mgg.geology:G04150	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
2	BLM/OCS Baltimore Canyon (Mid-Atlantic) Data Set ★★★★★	gov.noaa.ngdc.mgg.geology:G02882	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
3	BLM/OCS Ecological Investigations of Petroleum Production Platforms in the Central Gulf of Mexico ★★★★★	gov.noaa.ngdc.mgg.geology:G02895	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
4	BLM/OCS South Texas Outer Continental Shelf (STOCS) Grain Size Data Set ★★★★★	gov.noaa.ngdc.mgg.geology:G02888	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
5	BLM/OCS Southern California Outer Continental Shelf Environmental Baseline Studies ★★★★★	gov.noaa.ngdc.mgg.geology:G02881	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
6	Biogenic Silica and Carbon 14 Age Dates from Lake Victoria Cruise V95 Cores ★★★★★	gov.noaa.ngdc.mgg.geology:G02885	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
7	Bottom Sediment Granulometric Data for the Continental Margins of the Bering, Chukchi, East Siberia, Laptev, and Beaufort Seas ★★★★★	gov.noaa.ngdc.mgg.geology:G02893	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
8	CLIMAP 120K bp Sediment Data Files - Micropaleontology, Carbonate Percentages, Carbon 14 Age Dates, and Oxygen Isotope Data for 52 Selected Seafloor Cores ★★★★★	gov.noaa.ngdc.mgg.geology:G00995	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
9	CLIMAP 18K bp Sediment Data Files - Micropaleontology, Stratigraphy and Geochemistry From Sea Floor Cores ★★★★★	gov.noaa.ngdc.mgg.geology:G00126	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC
10	CNEXO World-Wide Compilation of Published, Multi Component/Analyses of Ferromanganese Concretions ★★★★★	gov.noaa.ngdc.mgg.geology:G00251	Get Data , FAQ , HTML , Rubric , Components , KML	Discovery FGDC

Training and Education

- Training resources are available! (for a scoped audience)
 - Workshops
 - Presentations
 - Workbooks
 - Lesson plans
 - Curriculum
 - Exercises
 - Examples
 - Wiki's



Metadata Summit: Results of Breakout Group Discussions

Breakout Group Approach

- **Met in groups for afternoon of Summit**
 - ISO Implementation
 - ISO Tools and Applications
 - ISO Education and Communication
- **Purpose**
 - Identification of Common Issues
 - Recommendations for Common Solutions



Breakout Group Descriptions

- ISO Implementation:

Topic: Issues related to the integration of the ISO metadata standard into the geospatial data management and workflow

Question: *Assuming that the standard is stable and tools and training are available, what workflow and management challenges do you face in transitioning your organization from the CSDGM to ISO metadata?*

Breakout Group Descriptions

- ISO Tools and Applications:

Topic: Issues related to the tools needed to effectively create, transform, validate, and publish ISO metadata

Question: *What specific application capabilities are needed to support ISO metadata within your organization?*

Breakout Group Descriptions

- ISO Education and Communication:

Topic: Issues related to outreach and training required to support transition to ISO metadata including: guidance documents, instructional materials, promotional materials, tutorials, websites, and training events

Question: *What training and outreach resources are needed to support the transition from CSDGM to ISO metadata?*



Summary of Results

- **Three broad categories of issues, actions, and recommendations for transitioning to ISO standards**
 - **Policy and Guidance** – providing framework for enhancing transition across organizations
 - **Tools and Applications** – providing the means to transition
 - **Education and Communication** – providing the instruction for transition and learning from others

Policy and Guidance

General Outcomes:

- Participants felt that implementation must be led by administrators.
- Until ISO metadata are made policy and incorporated into performance plans, agencies are not likely to invest in a transition and implementation effort.

Policy and Guidance

Recommendations:

- Change the FGDC 'stay the CSDGM course' guidance to encourage and support ISO metadata exploration and implementation

FGDC Metadata Working Group

- Develop a compelling case for ISO metadata implementation that highlights and demonstrates the benefits to agency directors, managers and staff

FGDC Coordination Group

- Develop and promote an administrative directive that outlines a Federal strategy for ISO implementation

*FGDC Coordination Group
and FGDC Executive Committee*



Policy and Guidance

- **Recommendations (cont'd)**

- Provide ISO metadata incentives and resources and include ISO implementation in performance plans, metrics, position descriptions, budgets and contract deliverables

each FGDC Member Agencies

- Develop and share situational 'use cases' that demonstrate how and when ISO metadata may be incorporated into the workflow

FGDC Member Agencies



Tools and Applications

General Outcomes:

- Agencies have made great strides in integrating metadata development into their workflow.
- Comprehensive and intuitive ISO metadata tools and applications are needed to assimilate the new standard into existing workflows.

Tools and Applications

- **Recommendations**

- **Develop a nonproprietary, free, simple to use, online ISO metadata editor**

FGDC Member Agencies

- **Develop GIS-internal metadata editors and management tools that are fully compliant to ISO and support the import of CSDGM metadata**

Software developers



Tools and Applications

- **Recommendations (cont'd)**

- Update the ISO Metadata Editor Review maintained by the FGDC

FGDC Metadata Working Group

- Fully support ISO metadata in data.gov

Data.gov Geodata Program

- Develop an online reference that enables users access to ISO metadata element format and content descriptions without copyright restrictions

FGDC Metadata Program



Education and Communication

General Outcomes:

- Agencies require critical information about the content and application of ISO metadata standards to move forward with implementation.
- ISO relevant training, training materials, guidance resources and trainers are needed.
- In addition, a forum is needed to continue the Summit dialog and build upon shared experiences.

Education and Communication, cont'd

■ Recommendations

- Develop training materials and events that support:
 - a range of training formats including webinars, self-paced online training, FAQs, and classroom training
 - different levels of learning (intro, intermediate, advanced) and work roles (metadata creator, manager, user)

FGDC Metadata Working Group

- Establish an ISO metadata 'Train the Trainer' program

FGDC Metadata Program



Education and Communication, cont'd

- **Recommendations (cont'd)**

- Provide regular and clear communication about the standards process and status

FGDC Metadata Working Group

- Create an ISO metadata wiki that is logically organized and actively managed

*NOAA NGDC with
FGDC Metadata Working Group*



Metadata Summit: Summary of Feedback

Summit Day Feedback Summary

- Audience Assessment indicated high satisfaction for:
 - Summit as a good forum to communicate about ISO implementation
 - Quality of presentations (informative and good foundation for discussion)
 - Breakout groups well facilitated
 - Opportunity to express opinions and ask questions
 - Information will aid in job performance

Summit Feedback Summary

- Overall recognition that Federal agencies should be moving to ISO now
- Participants saw value in implementation of ISO on a larger scale
- High interest in seeing another Summit offered within 6 months



Next Steps

- **FGDC Metadata Summit Webinar recording**
- **Workshop Summary**

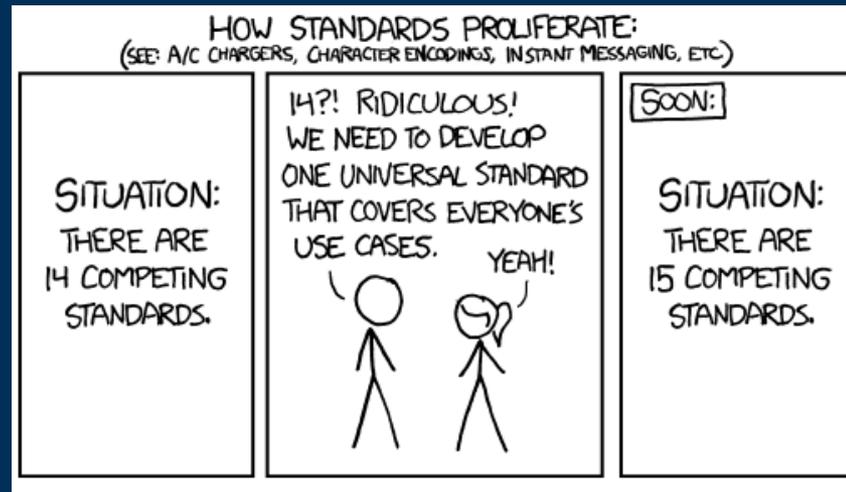
Will be available at:

<http://www.fgdc.gov/metadata/events/metadata-summit>



Comments? Questions?

Send input to:
fgdc@fgdc.gov



Appendix D
Metadata Summit Webinar Question and Answer Session

Q: Are you aware of an agency that has already converted most (or all) of their FGDC metadata records to the ISO standard?

A: Yes. NOAA National Geophysical Data Center (NGDC) has converted all of their resources and maintains them in ISO 19115-2, CSDGM and other formats. NOAA Coastal Data Development Center (NCDDC) is in the process of converting all metadata to ISO 19115-2.

Q: Is there a timeframe for geo.data.gov/geoplatform to utilize ISO metadata?

A: ISO metadata implementation is in progress but no firm implementation date has been set.

Q: In an era of increasingly tight budgets, can future seminars be virtualized?

A: Certainly. It was decided that the initial Summit should be live to support participant interaction and input and that the webinar would be used to distribute the information and outcomes. Telecons, webinars and online options will be the primary forums as we move forward.

Q: I like that you are recording this Webinar for future viewing. Will you also make the PowerPoint document available?

A: The Webinar slides and recording and the more detailed Summit slides, breakout session issue tables and all other related documents are available at:

<http://www.fgdc.gov/metadata/events/metadata-summit>

Q: Is 19157 Data Quality implemented as "stand alone" like feature catalog or integrated like 19119 Web Mapping Services

A: Data Quality is integrated *in the current version* of ISO 19115. However, Data Quality has been removed and made stand alone in the forthcoming ISO 19115-1 update to ISO 19115. The opposite is true of Feature Catalog (entity/attributes). Feature Catalog is not integrated in the current version of ISO 19115 but is integrated into the ISO 19115-1 update version.

Q: Are there any NAP/FGDC meetups schedule for ESRI Federal User Conference?

A: Yes, the EPA has a meeting planned for Friday morning of the Fed UC in February 2012.

Q: Are there any plans to create a single xml schema that meets several ISO standards so we don't have to make five separate files to replicate what we can do with a single CSDGM file?

A: You will not need to make five separate files to replicate what you can do with a single CSDGM file. However, you are correct that ISO metadata is comprised of a suite of standards commonly referenced as ISO 191**. This is because some of the standards will be used standalone, e.g. use of Data Quality to document organizational QA/QC process or to support functions beyond basic data documentation, e.g. define coordinate systems. As such there is no single 'one size fits all' combination of schemas. The effective integration of the standards is addressed during ISO training.

Q: I am getting ready to implement a new GIS for a River Authority, can I go completely ISO and not worry about FGDC standards, especially for sharing our information?

A: Yes. However, you must consider if you can implement the tools (editor, validation schema, clearinghouse, etc.) to fully support ISO and if your community can ingest and utilize ISO.

Q: When is the next call for this group and what are next steps?

A: The best approach to stay informed is to join the FGDC Metadata Working Group (MWG). This forum is serving as the MWGs quarterly telecon. If you are not a member of the MWG, email a request specifying MWG to fgdc@fgdc.gov.

Q: I heard a deadline for May 2013- what was that in reference to?

A: The ISO 19115 five year review update, ISO 19115-1, is expected to be formally finalized and adopted by ISO in May 2013. However, the standard has reached 'draft international status' (DIS) and the INCITSL1 leadership has stated that this is significant as DIS standards are considered 'stable' at this point, subject only to editorial changes.

Q: Can you recommend by name some stand-alone ISO metadata editors?

A: Please see the FGDC ISO Metadata Editors Review at: <http://www.fgdc.gov/metadata/iso-metadata-editor-review>. Note that a 2012 update to this resource is planned though the format may change slightly to better support direct input by the software developers. However, we do intend to maintain the 'User Review' portion of the resource.

Q: Do we have any specific standards for images (rasters)

A: Yes. ISO 19115-2. It fully includes ISO 19115 and adds elements for images, gridded data and other remotely sensed data including monitoring stations, instrumentation, platforms, etc.

Q: Is there a simple how-to document on filling out the ISO metadata in a text file or in a GIS software package like ArcGIS? Is there a simple how-to document for converting existing metadata to the new standard?

A: The NOAA National Coastal Data Development Center (NCDDC) workbook shown in the PPT is available from <http://www.ncddc.noaa.gov/metadata-standards/>. Information about transforming metadata to ISO is available from the NCDDC metadata transform site (<http://www.ncddc.noaa.gov/metadata-standards/metadata-xml/>).

Q: I saw brief mention of biological data at the webinar beginning. Is there an ISO standard for biological data?

A: Yes. There is an ISO extension based on the CSDGM Biological Profile. The transforms available from NOAA (<http://www.ncddc.noaa.gov/metadata-standards/metadata-xml/>) support transformation of CSDGM bio data to ISO bio.