

June 18, 2015

**Call for Participation
Technical Meeting on Metadata Standard for Global Geodesy**

***A meeting of the
Working Group on Data and Information,
GGOS Bureau of Networks and Observations***

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This is a Call for Participation in a technical interchange meeting that seeks to identify the best course of action toward geodetic metadata standardization. This standard should allow discoverability of data and products from world data centers or search engines, as well as facilitate the efficient and automatic transfer of geodetic data and metadata between data custodians and users through complete machine readability.

In this technical meeting, GGOS does not intend to develop its own schema for metadata functions, but rather to build on a schema that is already established or well under development. This meeting will bring together metadata users and metadata schema developers to address key issues and to organize a plan to achieve the best possible route to standardization and efficiency.

Introduction and the Need for Geodetic Metadata Standardization

We live in an era when the geodetic community is being called upon to provide data, products, and services in support of a broad sphere of Earth System Sciences. Additionally, society now demands, through the wide use of smartphones and mobile devices, accurate and reliable Positioning, Navigation and Timing (PNT) information. In order to service these user demands, our geodetic data and its associated metadata need to be discoverable, authoritative, and interoperable.

In order to be effective, metadata need to be simple to generate and maintain. They must be consistent and informative for the archivist and the user. The continual increase in the volume and complexity of data means we also need to generate, transfer and use data and metadata via a machine-readable form. In order to achieve these stated goals it is clear that the time has come to develop a XML based standard for geodesy. It is also clear that despite the huge impact of geodesy on society, geodetic data is a small subset of spatial data, and an even smaller subset of Earth observation data. Therefore any efforts by the geodetic community to create a metadata standard should align closely with existing initiatives in these larger communities.

We recognize that even with an agreed schema, not all of the users will adopt a standard immediately; what is essential is that all agree that when they are ready to begin an implementation, they will adopt the standard agreed upon in this meeting.

Projected Outcome of the Geodetic Metadata Working Meeting

A path to a unified standard, or at least a basis of compatibility to serve the requirements of the geodetic community, based upon what we know we can achieve. This path will make geodetic metadata:

- discoverable and interoperable,
- easily transferable via web services, and
- based on internationally recognized data exchange methods.

Current Geodetic Metadata Situation

The broader geodetic community currently has no standard in place that allows discoverability of our data and products from worldwide data centers or search engines. Nor do we have a machine-readable standard that allows for the efficient and automated transfer of geodetic metadata and data between data custodians and users. Thus, the current situation restricts the usability of our information in a broader community. It also reduces our capability to maintain accurate databases, access and retrieve information, reliably integrate data from multiple sources, and provide users with the reliable and accurate data they need.

Some existing standards are available which assist with basic information retrieval or the transfer of a limited set of geodetic metadata. However, there is an obvious need for a new standard covering the sharing and collation of large amounts of geodetic data and metadata captured and stored by any number of custodians in a range of different database types using proprietary software.

For example, an IGS activity, through its Data Center Working Group and led by Fran Boler, is striving to settle on a schema for describing and facilitating site metadata exchange within the IGS community. The site information metadata is only one piece of the larger requirement, which also includes observational data from the sites and derived data products of importance to the users. Ideally, the schema being sought by the IGS will include provisions for the full metadata requirement and could be expandable to fulfill the needs of the other IAG services and applications.

Several groups involved in the archiving and distribution of space geodesy metadata have already expressed interest in collaborating on the design and implementation of a standard metadata model. Some organizations are already moving forward independently. It is to the benefit of the geodetic community to get the developers and the users together to help plan a common path forward.

The Geodetic Metadata Working Meeting

The proposed meeting will be hosted by UNAVCO in Boulder, Colorado, USA on 10-11 August 2015.

The overall goal is to address and document answers to the following questions:

- What metadata applications/capabilities do the IAG services, data centers, and the user community need/want? Does everyone have the same requirements? Are requirements in any way mutually exclusive?
- Can we converge on a core geodetic metadata standard that is useful to all the parties, or is it more efficient to develop separate, simpler systems with a posterior mechanism for common interface?
- What capability does each of the schema developers have? What are the strengths and weaknesses of each? What is the status of their development?
- Do the services have the infrastructure to support and service global use?
- Is the schema practical to adapt and expandable. Is it open software?
- Can the developed schemas or those under development satisfy our full suite of requirements?
- Is there practical synergy between schemas that could give us a stronger capability; is there a collaboration that might lead to a consolidated product for the geodesy community?
- All current schema developments are based on well-accepted international standards (e.g., OGC, ISO, etc.). Because different standards are in use, should there be some way of mapping or translating from standard to standard, in order to fulfill different schemas or applications?

Criteria for Participation

Participants at the technical interchange meeting on a geodetic metadata standard will include:

- IAG Services specialists in data distribution and archiving,
- representatives from the IAG Services data centers,
- metadata schema developers,
- and other metadata specialists to share their experience and wisdom.

Attendance is limited to 30 people. Participants are expected to provide their own travel and accommodation.

The Organizing Committee

- Fran Boler/UNAVCO
- Allison Craddock/BKG

- Gary Johnston/GA
- Michael Pearlman/CfA
- Carey Noll/NASA GSFC
- Bernd Richter/BKG

Goals of the Geodetic Metadata Working Meeting

- Assessment of the requirements of the metadata systems; what applications should the system facilitate?
- Agreement on the best path forward for establishing geodetic metadata standards for site log files, data, and products;
- Address the use of geodetic ML for site log descriptions and other applications;
- Present the current state of G(X)ML schemas at leading institutions (for the understanding of the capability, strengths, weaknesses, stages of development, and the future plans for each of the candidate metadata system developers);
- Assess whether a single standard should be chosen, or if a consolidated standard is the most practical solution;
- Steps forward to optimal standardization methods.

Preparation

To make the most effective use of time, in preparation for the meeting:

- IAG Services and Data Centers are requested to provide a one page brief on their projected metadata applications and users, as well as any “lessons learned” regarding needs for standardization;
- Schema developers are requested to provide a 1-2 page brief on their current metadata systems, including the technical basis, envisioned scope of application, capability, current status, etc.;
- Those already participating in a schema should prepare a short presentation to communicate the state of their work, any key information, and possible points for improvement or collaboration with other schemas.

Application for Participation

We require advance registration for those who plan to participate. Please send your request to participate including your name, institution, relevant field of interest, and experience with metadata to:

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Conclusion

GGOS, representing the global geodetic community, has identified the need for a geodetic data and metadata transfer standard. We have scheduled a technical interchange meeting on geodetic metadata standards on 10-11 August in Boulder, Colorado, USA to bring together key players in geodetic metadata to develop a path toward data interoperability, as well as the discovery and support information exchange within and between geodetic organizations (e.g., network managers, data centers, analysis centers, product centers, etc.) and users of geodetic products and services.

Resources

- A White Paper recently circulated to GGOS representatives explaining the need for a metadata standard for global geodesy
- GeodesyML documentation:
 - A document describing some background information about GeodesyML and why we are proposing it be used to encode site logs (attached)
 - The eGeodesy landing page: <https://icsm.govspace.gov.au/egeodesy/>
 - The latest version of GeodesyML (v0.2): <https://icsm.govspace.gov.au/egeodesy/geodesymml-0-2-schema/>
 - Example of how a site log is encoded using GeodesyML: https://icsm.govspace.gov.au/files/2015/06/MOBS_SiteLog.xml