

**ISO/TC 211 Geographic information / Geomatics
Newsletter No 5 July 2004**



Dear Colleagues,

This ISO/TC 211 Newsletter is intended for the members of

ISO/TC 211 and its Class A Liaison organizations.

As this Newsletter, a service provided by the ISO/TC 211 Advisory Group on Outreach, develops and evolves, we hope it will also become informative to the global geographic community and eventually to the public at large.

Our mission is to provide information on the standardization of geographic information and related activities.

This issue of the Newsletter takes a look at some recent publications about the standardization of geographic information and a recent survey with questions about standards organizations.



Sincerely,

Henry Tom, Editor
ISO/TC 211 Newsletter.



International Federation of Surveyors
Fédération Internationale des Géomètres
Internationale Vereinigung der Vermessungsingenieure

FIG – Standards

May 2003

FIG, the International Federation of Surveyors, represents at an international level approximately 250,000 surveyors. It encompasses construction economists through to geomaticians, with nearly 100 member bodies from about 80 countries. A focus of the Federation in recent years has been raising the profile and influence of the profession in key international bodies such as the United Nations.



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One area in which FIG has become active over the last few years is that of standardisation. A Task Force on Standards was set up in 1998 to explore how FIG could most usefully become engaged; this was replaced with a Standards Network in 2002. This Network aims to ensure that all of the technical commissions in FIG (the bodies that carry out the bulk of the technical work) are strongly linked into standardisation activity. To this end, FIG has liaison status to key ISO Technical Committees, including TC211 on Geographic Information and TC172 SC6 on Optical Instruments. FIG also actively collaborates with the International Valuation Standards Committee, which sets standards in that area.

The world of standards can often seem incomprehensible to outsiders. To overcome this barrier, FIG's Task Force has created a [Guide on Standardisation, \(Appendix 1\)](#) which seeks to explain the terminology and jargon used, and also to highlight the central importance of standards to professionals. Copies of this publication can be downloaded, free of charge, from the FIG website (www.fig.net), following the link to Publications, number 28. The website also contains an area for the Standards Network, which links to a number of papers and other websites. To quote some numbers from the Guide:

- There were 12,524 ISO standards in print at the end of 1999, totalling 356,427 pages
- The benefit of standardisation to the German economy is 15 billion per year (more than patents and licences)

FIG, with the Network coordinating its activity, has been working in a number of standards-related areas recently, including:

- The work of ISO TC211 on the qualification and certification of personnel, an area which FIG believes is better handled through professional



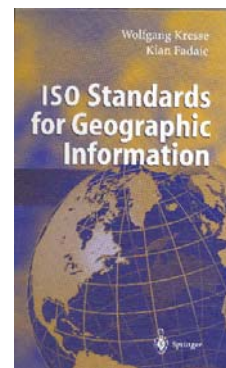
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bodies. To this end, FIG has been very active over the last few years in furthering the concept of mutual recognition to facilitate cross-border movement of professionals

- Reviewing the benefits and possibilities of creating a core domain model for the cadastral domain. This area is vital for national and international development, as all development depends on the secure tenure of land. FIG's Commission 7 is working in this area, in collaboration with bodies such as the Open GIS Consortium (OGC) and ISO TC211
- The development of a world guide on good practice, a large repository of information which can be freely accessed via a web browser. This is an ambitious project, and one which is central to the current FIG presidency's plans for 2003-06
- The development of practical, workable standards for the testing and calibration of survey instruments, taking a leading role in ISO TC172 SC6, and seeking to replace the multiple, impractical standards that previously existed in this area.

In this, as in other work, FIG continues to collaborate with sister societies such as the International Cartographic Association, and the International Society for Photogrammetry and Remote Sensing.

FIG sees standardisation as a key area for the involvement of professionals, to ensure timely, workable standards. FIG therefore supports work in many areas, including those summarised above. More information on FIG's work in this area is available on the FIG website or from Iain Greenway, chair of the FIG Standards Network, at igreenway@compuserve.com



ISO Standards for Geographic Information

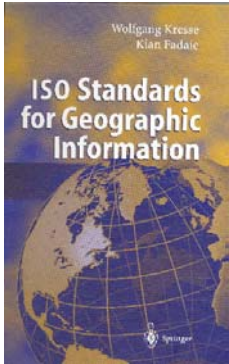
BOOK REVIEW

*ISO STANDARDS FOR GEOGRAPHIC INFORMATION
WOLFGANG KRESSE AND KIAN FADIAE
PP 216 PLUS BIBLIOGRAPHY
ISBN 3-540-21030-0
SPRINGER, €89*

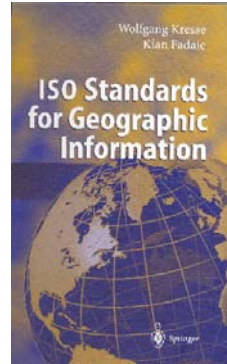
The work of ISO/TC211 in the field of geographic information standards is becoming known to many in the industry but is perhaps still a well-kept secret. This book by Wolfgang Kresse (Germany) and Kian Fadaie (Canada), both of whom have been involved in the work for several years, is a further attempt to explain what is happening and to provide a source of reference material. The introduction to the book makes clear that it is written for those with some background in GIS and is aimed particularly at technical experts: its key audiences are stated to be those writing code for systems which should conform to the relevant ISO standards, and academics teaching on GI standards.

Standards are becoming essential in all fields of life, not least GI. They are, the authors state, often seen as a compromise between existing and proven solutions, developed by dull administrative people. However, research in Germany in the late 1990s showed that standards are worth €15 billion per annum to the German economy, so they very definitely cannot be ignored.

The six chapters of the book and its five lengthy appendices contain a large number of tables and diagrams to explain and record concepts and other information. Chapter 1 provides a general overview of standards and the standardisation process, particularly with regard to ISO. It covers a lot of ground, including interesting insights such as that



ISO is not an acronym (the full organisation name is the International Organization for Standardization) but rather derived from the Greek *iso* meaning equal. The chapter includes a section on ISO9000, the most popularly known standard. The challenges of speeding up the standardisation process, and avoiding overlapping interests, conclude the chapter.



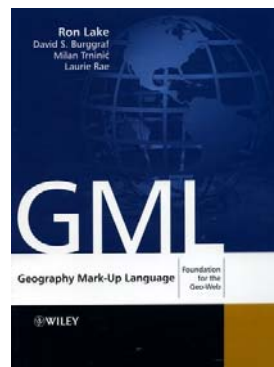
In summary, the book contains a vast amount of information that provides an invaluable reference volume. It is definitely not for the non-specialist – but this is made clear at the very beginning of the book. The substantial price for the volume indicates further that it is for a specialist market. In light of the price, the standard of proof reading is insufficient, with many typographic errors and layout inconsistencies.

Chapter 2 turns to geomatics standards and sets out the history of this work. It then uses a simple map as an example to describe the various concepts including types of features, their attributes, and the concept of a schema. This is where the lay reader will start to struggle. The chapter also includes a road map to the ISO 19100 standards on GI. This is, in effect, the end of the introductory material.

Overall, though, the book will serve its intended market well and lifts the veil a little more on the world of GI standardisation.

Iain Greenway
Chair, FIG Standards Network

Chapters 3 and 4 are the heart of the book. They take each ISO standard in turn. There is, for instance, a lengthy section on the conceptual schema language used in the standards (again, for the knowledgeable reader). Concepts such as profiles are introduced, as are coordinate reference systems and services. There is a general introduction to metadata. In this, the reviewer (a resident of Dublin, Ireland) learned that the Dublin Core set of metadata refers to Dublin, Ohio and not Dublin, Ireland. There is a good section on sensors for gathering data, and sections on topics as diverse as location-based services and quality measures. The text is open in discussing the anomalies between different standards in the set as they have evolved from different histories. A summary on progress on GML is included.



GML Geography Markup Language:

Foundation for the
Geo Web

by Ron Lake et al

Chapter 5 places the work of ISO/TC211 in a wider content by examining all of the external bodies which are involved in its work, particularly considering the links with the Open GIS Consortium (OGC).

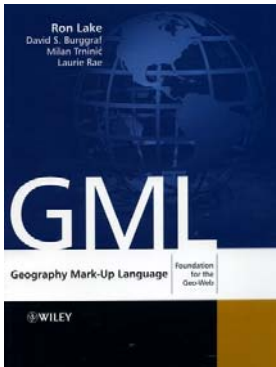
BOOK REVIEW

Chapter 6 is titled 'Applications' and the reviewer turned here to understand how all of the standards being developed will bring practical benefits to the industry and its customers. He was disappointed – the four pages of the chapter consist of brief descriptions of work in Canada and Germany.

Together with the Simple Features (ISO 19125) and the Web Map Service (ISO 19128) specifications, the Geography Markup Language (GML) is arguably the OpenGIS Specification with the highest impact on the GI community.

The lengthy annexes include all ISO/TC211 terms, all metadata elements, an explanation of XML, a long list of abbreviations, and class names. They are therefore a valuable source of reference.

GML addresses the problem that in today's global network the distributed geospatial resources must be integratable on-the-fly to build spatial data infrastructures and, therefore, a common XML-based "lingua franca" for spatial information is required. The importance of GML is also reflected by the



current integration of GML into the ISO 19100 series as ISO 19136.

Therefore, it is timely that John Wiley & Sons Ltd. has recently published a book on GML, “Geography Mark-Up Language, Foundation of the GeoWeb”.

The book, written by Ron Lake, a leading contributor to GML, and his team at

Galdos Systems Inc., is an important milestone for the Geography Markup Language. The book helps to fill this gap and is written in two parts.

The first part is an introduction to GML. It explains the ideas that lead to the development of the language, the basic concepts and their role in Internet or Intranet-based GI applications. This part targets all readers interested in this topic, but specifically addresses questions of GI and IT managers.

The second part discusses GML version 3.0 in detail and supplements the normative, technical specification. It covers the GML syntax, application schemas and features, the GML schema (geometry, topology, temporal elements and dynamic features, coordinate reference systems, units of measure, values, observations, coverages and default styling) as well as the relationship of GML with XML technologies, web services and database management systems.

Normative specifications are by their nature reference documents and not written to introduce a reader to a complex topic. As a result, there is a need for educational material to make GML more accessible to newcomers.

Clemens Portele
ISO/TC 211 Project Leader,
ISO 19136 Geographic information-
Geography Markup Language



Interoperability – Overused Word or Key Message?

Directions Magazine Editorial by [Joe Francica](#) , June 23, 2004

I think we banter about “interoperability” too much. The word is becoming overused and, at times, seems out of context. This billboard (at right) sits along a major road in the city where I live, Huntsville, Alabama. It is a curious sight to anyone who does not have a clue as to what this sign refers. Now, Huntsville is a high-tech town with many defense and space program engineering contractors, such as Teledyne Brown, Lockheed Martin, Boeing, and Northrop Grumman in addition to others such as Adtran, and Sanmina. So, to some employees at those firms, the term “interoperability” probably means more to them in terms of “hardware” interoperability, than it does to perhaps another employer in town, Intergraph.

It is an appropriate sign to hang in Intergraph's backyard, a company that has beat the drum of open, interoperable standards for a long time, and in fact makes it a major focus of advertising, conferences, and sales pitches. But has the message sold? It's not that the message is wrong, it's just that it seems to have made little difference in terms of accelerating their market share and revenues.

This speaks to their image and perception in the marketplace.

Interoperability is either a poor choice of words or is perhaps misappropriated in certain circumstances. We use it to explain the connectivity or lack thereof between heterogeneous GIS software solution environments. We use it to explain how GIS can or should sit within a large enterprise computing environment. And we use it to describe more general themes, such as this from David Schell, president of OGC, when, in the context of homeland security and the protection of our infrastructure (May 2004 OGC Newsletter), he said:



But here where I sit on the front lines of "interoperability," it becomes more obvious by the day that what is truly more relevant than such dreams is the need to help technology providers working at the most basic levels of civil infrastructure to make society and our institutions work better and cost less. And that if anything constitutes going to the next level for OGC, it is developing the capacity to transfer the consortium's experience and technical know-how to this channel, and to bring these companies en-masse into the consortium process and create a requirements dialogue that results in extending the benefits of interoperability more generally and more rapidly throughout society."

Indeed, this is the goal of the OGC, but if this is the *next level*, what was it doing before? I think Mr. Schell is trying to articulate a vision of how technology supports those front line defenders of our nation's security. I know what he means, and it is proper to try to explain the benefits of open standards for spatial information in the context of educating a broader community of both technology and policy executives, but I thought that is what one of the key goals of the OGC had always been. I encourage you to read Mr. Schell's entire message in the [OGC News](#).

Let's look at our own [2004 GIS Survey](#) where we used the term "interoperability" in one of the questions related to these goals of the OGC. We asked respondents to rank the accomplishments of the OGC in establishing guidelines for geospatial system "interoperability." Of 1050 respondents to

Total Answers	969
1	36
2	110
3	511
4	259
5	53

date, 969 answered the question. On a scale of 1-5 (5 being the highest) Here are the responses.

The responses lean more positively this year but more than 50% still give the OGC a neutral rating when it comes to making a difference and communicating their objectives. If we can't communicate the most basic objective of how our technology can work with other mainstream computing systems, we'll stagnate as a technology sector.

Is "interoperability" simply an awkward choice of words to use as a marketing slogan? I've never seen the word "interoperable" on the box for a USB-enabled printer, external drive, or keyboard. But, then "plug and play" seems a bit trite in terms of explaining how two proprietary spatial databases share and exchange content. It is a dilemma we need to address.

As a start, I suggest placing the word "interoperability" in a different setting to see what the results might be: A parent-teacher's meeting.

Teacher: "Mr. and Mrs. Smith, I'm afraid little Fred lacks some...well...*interoperability* skills. The other children seem to frown on his open architecture and this doesn't translate well with the remainder of the class infrastructure. But his ETL skills (that's extract, transfer, and listen) are just great for classroom assignments. However, on the playground, GIS (that's 'Gets Into Socializing') just isn't working. We'll need to work on his ability to

interoperate from a dynamic global perspective and within the more restrictive school enterprise, as well.”

Parents: “Come again?”

Sometimes our verbiage is too pedantic

Since much of the Directions Magazine audience is international – it is not surprising that ISO is relevant to their organizations.

What is discouraging is that 42 % do not find any of the listed standards organizations significant to their organizations. Does this mean that interoperability is not an issue? Equally disappointing is the interim result, from the Directions Magazine Editorial (above) that more than 50% of those responding gave the OGC a neutral rating in terms of “making a difference and communicating their objectives”.

I suspect that a possible answer to whether the geo-spatial community considers standards organizations effective is precluded by the possibility that much of the geographic information of these organizations remain in a “closed and not in an open system” and that standards and software interface specifications are not yet needed.

Mr. Joe Francica has been very kind and gracious in allowing the readers of this newsletter to still purchase the [2004 GIS Survey](#) at the prepublication price of \$100. Those that are interested in obtaining a copy of this survey, please note this when contacting Mr. Francica directly at : [Joe Francica](#).



Henry Tom,
Co-Chair, ISO/TC 211
Advisory Group on Outreach

Most Relevant Standards Organizations

The Directions Magazine’s 2004 GIS Survey question of interest to ISO/TC 211 would be number 30. The final results of this survey indicate:

Which standards organizations do you find most significant to your organization?

