8TH MEETING OF THE HYDROGRAPHIC SERVICES AND STANDARDS COMMITTEE

HSSC8 - IHB, Monaco (14-18 November 2016)

Paper for Consideration by HSSC

ISO Activities Affecting HSSC

Submitted by:	IHB
Executive Summary:	This paper reports on the activities of the ISO Technical Committee 211 (ISO/TC211) that are relevant to the work of the HSSC.
Related Documents:	S-100 and all dependent product specifications.
Related Projects:	S-100WG, NIPWG, TWCWG, MSDIWG and DQWG

Introduction / Background

The IHO is a class A liaison member of the ISO Technical Committee 211 (ISO/TC211) and has contributed towards the development of the 19100 series of standards and technical specifications. These ISO standards have been used for the development of the S-100 Universal Data Model, the IHO Geospatial Information (GI) Registry and various S-10X product specifications currently under development. Since the 7th Hydrographic Services and Standards Committee (HSSC7) meeting (9-13 November 2015), the IHO participated in the 41st and 42nd ISO/TC211 plenary and working group meetings which took place in Sydney, Australia (7 - 11 December 2015) and Tromsø, 13 – 17 Norway (13 - 17 June 2016) respectively.

Analysis / Discussion

The membership of ISO/TC211 continues to grow. Since the last report, nominations from the United Nations Statistics Division (UNSD), (which is the secretariat for the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)), and the Small Business Standards organization, (a European non-profit association representing European small and medium-size enterprises) to become class "A" members were accepted. Mexico and Mongolia were accepted as participating and observing members of the TC respectively. The ISO/TC211 has now 37 participating and 30 observing members.

At HSSC7, a proposal (paper HSSC7.7B INF) was submitted expressing concern that only the latest versions of 19100 standards were available for purchase from the ISO web site. As many of these older versions are still referenced in IHO documents (and possibly those of other organizations), it was proposed that older version of 19100 documents should be made available for purchase and download from the ISO document web site. This issue was raised at the 41st TC211 meeting, and the TC211 secretariat subsequently confirmed that older versions of the 19100 documents are available for purchase from the ISO web site.

The HSSC7 proposal also recommended that, where possible, a crosswalk referencing changes to previous 19100 document editions should be maintained. The crosswalk could be included as annexes to the revised standards and this would facilitate the implementation and maintenance of functional standards that reference the 19100 series of standards and specifications (*action HSSC7/43).*

The IHO expressed these concerns in its liaison paper to the 41st ISO/TC211 plenary meeting and the issue was discussed at several of the working group sessions. Following a presentation to the plenary meeting, resolution (744) was unanimously approved by the Technical Committee. The resolution confirms that; *"ISO/TC 211 strongly recommends that revisions of standards and technical specifications include an informative annex which describes how backward compatibility is addressed. This annex may include crosswalks, mappings or similar mechanisms, which evidence the degree of compatibility"*. This was reported to the 1st ENCWG / S-100WG meetings that took place during March 2016 in Tokyo, Japan.

Status of Document Revision

ISO requires that all standards, specifications (or other deliverables published by ISO or jointly with IEC) should be subject to systematic review in order to determine whether they should be confirmed as still being relevant, need to be revised / amended, need to be converted to another form of deliverable or should be withdrawn. The maximum elapsed time before a systematic review is required for a standard is 5 years and for a technical specification it is 3 years. The following table lists ISO/TC211 documents under review.

Project no	WG	CD	DIS	FDIS	IS
19101-2 (Rev)	6		2016-12		2017-12
19104 (Rev.)	1	**2014-01**	**2015-08**		Under publication
19107 (Rev.)	9	**2015-02** **CD.2 2016-02**	2017-05		2018-05
19110 (Rev.)	7	**2012-01**	**2013-06**	2016-07	2016-12
19111-1 (Rev)	9	*2017-05*	2018-05		2019-05
19112 (Rev)	1	*2017-02*	2018-02		2019-02
19115-2 (Rev)	6	2016-03	2016-07		2017-07
19115-3	7	**2014-02**			Under publication
19116 (Rev)	4	*2017-06*	2018-06		2019-06
19123-1 (Rev)	6		2018-01		2019-01
19123-2	6		2016-12		2017-12
19126 (Rev)	7	2016-12	2017-06		2018-06
19127 (Rev)	9	**2015-06**	2016-06		2017-06
19130-1 (Rev)	6		2016-12		2017-12
19131 (rev)	9	2017-06	2018-06		2019-06
19133 (Rev)	10		2018-01		2019-01
19139-1 (Rev)	7	2016-09			TS 2017-06
19142 (Rev)	4		2018-06		2019-06
19143 (Rev)	4		2018-06		2019-06
19155-2	10	**2014-08**	**2016-05**		2017-02
19157 Amd 1	9		2017-05		2018-05
19157-2	9	**2014-09**			TS 2016-09
19159-3	6	2016-12			TS 2018-12
19160	7	Stage 0			
19160-2	7	2017-06	2018-06		2019-06
19160-4	7	**2014-12**	**2016-04**		2017-04
19160-5	7	Stage 0	Review summary 2016-06		
19161-1	4	2017-04	2018-04		2019-04
19165	7	2016-02	2016-11		2017-11
19166	10	2017-03	2018-03		2019-03

ISO/TC 211 programme of work - Target Dates

WG = Working Group, CD = Committee Draft, DIS = Draft International Standard,

FDIS = Final Draft International Standard, IS = International Standard

Bold = Delivered documents

ISO/TC211 Harmonised UML Model

The graphic on the front cover of the S-100 standard, illustrates the relationship between the ISO/TC211 standards and the S-100 derived standards. By implication, there is also an important relationship between their underlying models. The S-100 model is based on the ISO/TC211 harmonised UML model and incorporates a selection of the TC211 model packages. It extends or constrains TC211 classes for its own requirements and includes an S-100_ prefix where necessary. The latest S-100 UML model is available from the S-100WG Basecamp (https://basecamp.com/) development site. The ISO/TC211 harmonised UML model can be downloaded from the ISO web site at http://www.isotc211.org/hmmg/HTML/root.html. The ISO/TC 211 have also developed a "UML best practices" WIKI to assist users of the model. (See https://github.com/ISO-TC211/UML-Best-Practices). There is also a discussion forum available at https://github.com/ISO-TC211/UML-Best-Practices/issues) for communities wanting to use the harmonised model. UML is a modelling language which describes packages classes (including their properties and relationships) in a graphical format.[1] In order to facilitate their implementation (e.g. by application developers), ISO/TC211 has also establishing a library of (19100) classes in XML format. It has established an XML schema repository which is available at http://standards.iso.org/iso/19115/resources/namespaceSummary.html. It has also set up a Github[2] working XML schema repository at https://github.com/ISO-TC211/XML.

In order to ensure that all future 19100 UML models are easily integrated into the harmonised model, the 42nd meeting approved a resolution requiring all project teams to create their harmonized models at an early stage of the standards development phase (resolution 777) so that they can be checked for compliance with the harmonised model.

Although the primary focus of TC211 has been to provide standards and specifications for geographic data, it has (in cooperation with the Open Geospatial Consortium), developed some standards for geospatial web services[3]. The TC has also recognised that it needs to respond to the development of the Semantic Web (or Web 3.0)[4] which implies a shift from a "Web of (human readable) documents" to a "Web of (machine readable) data". ISO 19150-1 provides rules for developing ontologies in the Web Ontology Language (OWL[5]). ISO 19150-2 supports the semantics of geographic information as part of the Geospatial Semantic Web. In response to this requirement, the TC has created a Github repository at https://github.com/ISO-TC211/GOM where harmonised OWL files can be downloaded. As the Internet coverage and bandwidth improve in port and coastal areas, this will be of relevance to future e-navigation related services and products. It may also be of interest to the IHO S-100 and MSDI Working Group activities. Currently the S-100 standard does not make provision for geospatial web services and it is proposed that this should be considered for inclusion in a future edition of the standard.

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[1] For the purpose of the paper UML refers to structure diagrams (i.e. package, class/structural and object diagrams).

[2] GitHub is a web-based Git repository hosting service. It offers all of the distributed version control and source code management (SCM) functionality of Git as well as adding its own features. (A "Git" is a version control system that is used for software development and other version control tasks).

[3] Web Map, Feature, Catalogue, Tile Services.

[4] The Semantic Web requires data that are understandable and processable by machines. XML is used as its syntactic foundation however it also makes use of other languages and frameworks.

[5] Web Ontology Language (OWL) is a Semantic Web language designed to represent rich and complex knowledge about things, groups of things, and relations between things.

Cooperation with the Open Geospatial Consortium

Both the IHO and the Open Geospatial Consortium (OGC) are liaison members of the ISO/TS211. The OGC have recently established a Marine Domain Working Group (DWG) to address interoperability challenges with marine geospatial data. This group will facilitate discussion of the requirements related to exchange methods and formats to ensure that data used for navigation can also be used within the broader realm of MSDI for non-navigational purposes.

The OGC have also initiated a Standards Working Groups (SWG) to explore and propose terms for a standard to enable interoperability through the use of Discrete Global Grid Systems (DGGS). The goal is not to identify one DGGS, but to increase awareness of the advantages of DGGSs in general, to define the qualities of a DGGS, to make them interoperable – with conventional and other DGGS data sources, and to standardize operations on them.

Change in ISO/TC211 Secretariat

Since the establishment of TC211 in 1994, Mr Olaf Østensen and Ms Bjørnhild Sæterøy (Standards Norway) have provided the secretariat function for the Technical Committee. After 22 years of excellent leadership and service, they have stepped down from this position. A notable achievement during their tenure was ISO/TC211 being awarded the Lawrence D. Eicher Leadership Award by the 33rd ISO General Assembly (in 2010) as an acknowledgement of *"the importance of the Technical Committees (TC) activities and the dedication and hard work of its members"*.

Mr Olaf Østensen and Ms Bjørnhild Sæterøy accepting the
Lawrence D. Eicher Leadership Award on behalf of ISO/TC211.

Following offers from China, Sweden and Turkey, Sweden (represented by the Swedish Standards Institute) was chosen to take over the secretariat of the TC from January 2017. The next ISO/TC211 meeting will take place in Redlands, California, USA from 28 November to 2 December 2016. The 44th meeting is expected to take place in Stockholm, Sweden in May or June 2017. Further information on the ISO/TC211 activities and associated working documents is available from the ISO/TC211 web site at http://www.isotc211.org/.

Conclusions

The IHB will continue to monitor and participate in the ISO/TC211 standards development work and report on relevant activities to IHO working groups and committees. IHO Member States are encouraged to liaise with their national standardization bodies to ensure that the IHO standards activities are understood and taken into account as appropriate at the national level.

Recommendations

This paper is for information only; no action is required.

Action Required of HSSC

The HSSC is invited to:

- **a.** note the paper,
- **b.** invite the IHO Secretariat to inform the MSDIWG of relevant developments,
- **c.** agree that the IHO Secretariat continues to monitor these activities, and
- **d.** take any other actions considered necessary.