



Hydrographic Services and Standards Committee

Report of the  
Data Quality Working Group  
to HSSC 6  
November 2014

# Principal activities and achievements

- ✦ DQWG 8 was hosted by the RAN Hydrographic Service in Wollongong, Australia between 25 and 27 March, 2014.
- ✦ This was in the same location as the TWLWG so we could jointly discuss quality issues in tide and water level predications as per HSSC5/46. OMC International, a commercial company offering Dynamic Underkeel Clearance solutions also attended.



# Principal activities and achievements

- ✦ OMC gave a very good presentation on their UKC solution. Of note was the fact that they only offered a solution where survey quality and water level quality were both very high. In areas of poor quality their solution would not work until new surveys, tide gauges etc. had been carried out or installed.



# Principal activities and achievements

- ✦ Their specialism lay in modelling ship motion in differing sea conditions, depths and at different speeds. To do this effectively they employ naval architects.
- ✦ Ship motion is very complex and in any area where UKC is an issue this remains the primary variable in the solution.



# Principal activities and achievements

- ✦ With HOs not possessing core skills in ship motion the DQWG was unanimous that the full UKC solution should be left to other organisations and DQWG work should concentrate on providing quality data on charted depths and features plus tide/water level heights largely in areas with less than optimum survey data.



# Principal activities and achievements

- ✦ As a consequence HSSC5/47 (use the MEH as a test case) is no longer considered to be relevant.
- ✦ Another consequence is that the proposed visualisation of data quality has changed. The data quality will still be based on three classes of quality but the visualisation will be different - maybe colour wash overlays or hash patterns. Red: Amber: Green will be left for any UKC go-no go presentation.



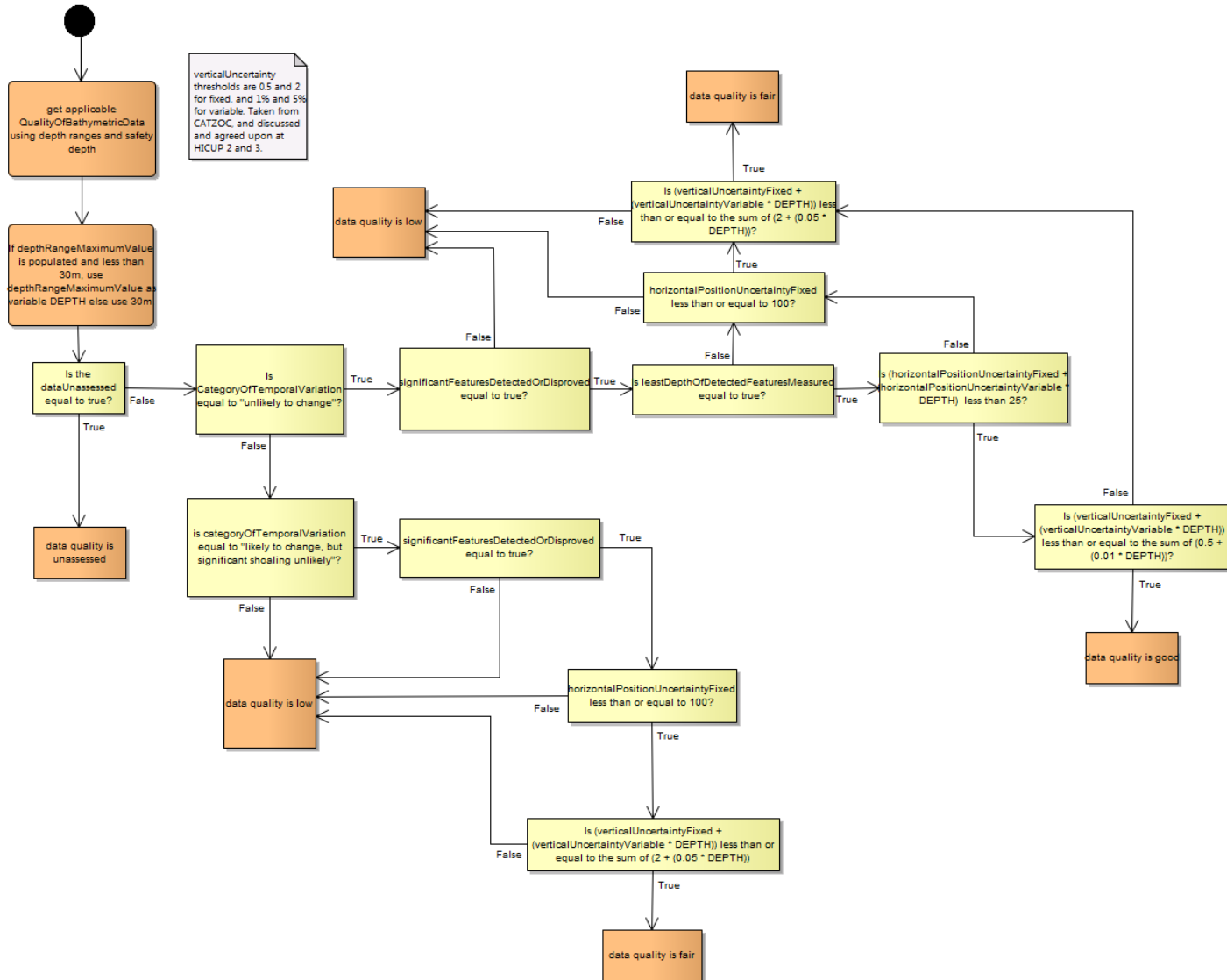
# Principal activities and achievements

- ✦ The decision tree for combining the individual data quality indicators into the three classes of quality was drafted (this was finalised at DQWG-9 last week).



# Principal activities and achievements

decision tree Decision Tree



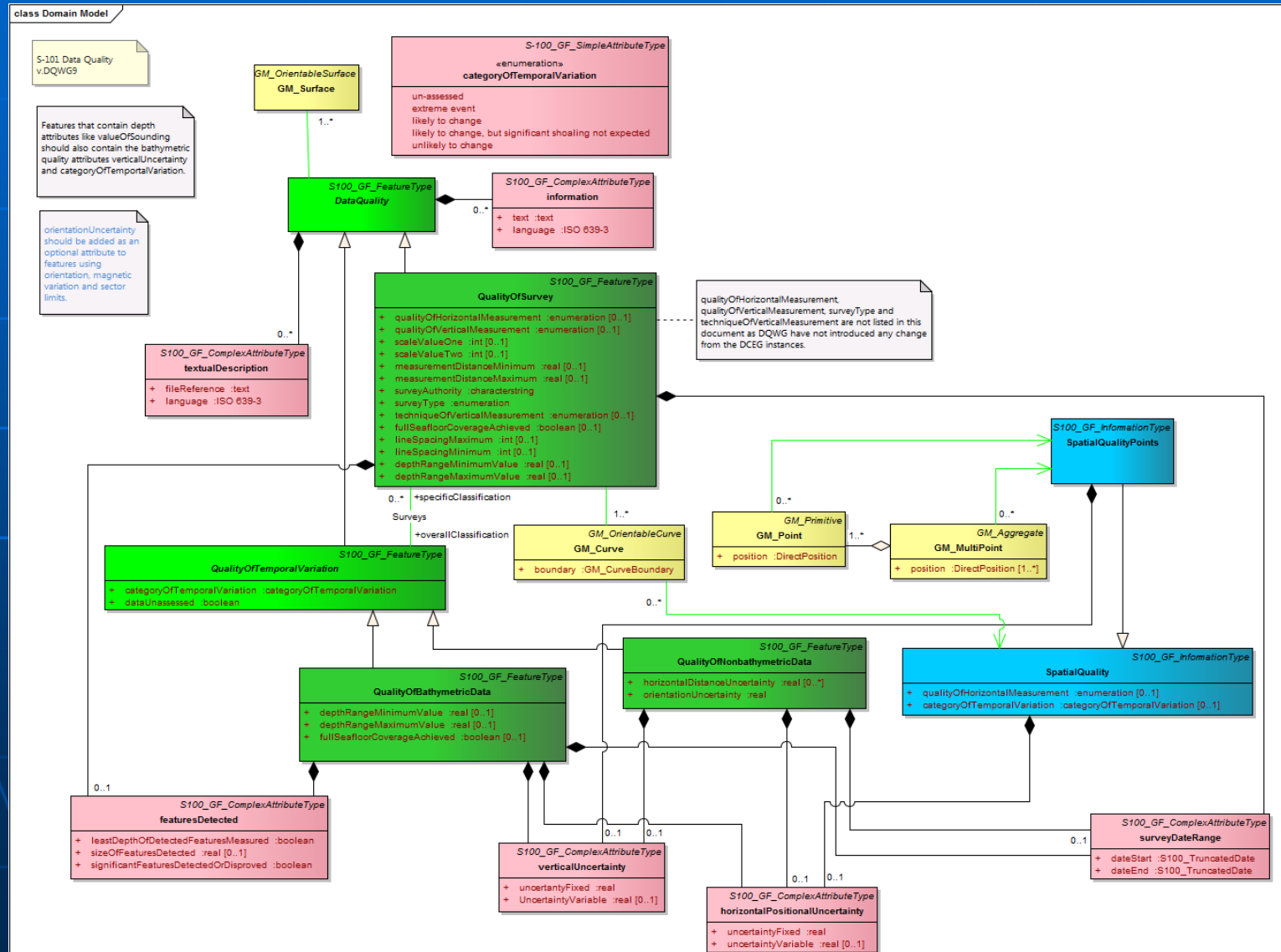


# Principal activities and achievements

- ✦ The data model was refined. (This was finalised at DQWG-9 last week).



# Principal activities and achievements



# Principal activities and achievements

- ✦ The mapping of S-57 attributes to their S-101 equivalents was improved. (This was finalised at DQWG-9 last week).
- ✦ The new S-101 attributes can be made from the existing S-57 attributes automatically allowing a conversion program to perform the task.



# Principal activities and achievements

- ✦ Educating the mariner was advanced although this is a difficult problem, not just for data quality! We are working with the Nautical Institute to provide Data Quality articles in their publications (SeaWays and Navigator) based on unified wording. This unified wording is to be devised by mid 2015.



# Problems or outstanding issues

- ✦ Main problem is in locating avenues to educate the mariner. Passive methods are relatively easy (e.g. placing articles in magazines on web sites etc.) but are relatively ineffective if not combined with active methods (talking to mariners maybe via training colleges). Locating the colleges and getting information into the courses is proving to be nearly impossible.



# Future work programme

1. Any remarks relevant to the understanding of the plan to be inserted in here.
- A. Review ISO 19113, Geographic Information-Quality Principles, ISO 19114, Geographic Information-Quality Evaluation Procedures, and ISO 19115, Geographic Information - Metadata and propose relevant enhancements and amendments for incorporation in S-100 "IHO Universal Hydrographic Data Model" (IHO Task 2.5.2)
- B. Monitor and further develop quality indicators for hydrographic data (IHO Task 2.5.2)
- C. Maintain and extend as needed existing quality indicators in S-57 "IHO Transfer Standard for Digital Hydrographic Data", including the education of both the mariner and the cartographer, and the development of documentation (IHO Task 2.5.2)
- D. Maintain and extend as needed the presentation of data quality, as provided in S-52 "Specifications for Chart Content and Display Aspects of ECDIS" and its Presentation Library (IHO Task 2.5.2)
- E. Investigate ways of ensuring that ECDIS displays provide a clear warning or indication to the mariner on the quality of the underlying survey data, through appropriate use of the attribute CATZOC and/or improvement of the existing display capabilities (IHO Task 2.5.2)
- F. Propose new data quality topics and other applications for consideration by HSSC (IHO Task 2.5.2)
- G. Maintain and extend data quality related elements of S-100 "IHO Universal Hydrographic Data Model" (IHO Task 2.5.2)
- H. Maintain and extend data quality related elements of S-101 "ENC Product Specification" and other S-100-based Product Specifications (IHO Task 2.5.2)
- I. Conduct the annual meetings of DQWG (IHO Task 2.5.1)

Task	Work Item	Priority H-high M-medium L-low	Milestones	Start Date	End Date	Status P-planned O-ongoing C-Completed	Contact Person	Affected Pubs/Standard	Remarks
A1	Review ISO 19113, 19114, 19115 and 19157 and make recommendations for inclusion in S-100	M		2010	Permanent	O	DQWG	S-100	Ongoing task to keep S-100 data quality in line with ISO standards.
B.4	Develop the hierarchy approach by formalizing the hierarchy and the algorithm that drive the display	H	TSMAD28	2013	2014	O	Mike Prince	S-101	To be completed for submission to TSMAD28.



# Future work programme

C.4	Investigate possible methods for how to educate practicing mariners on data quality issues.	H	DQWG9	2010	2015	O	DQWG		Investigate in liaison with training institutions the adequacy of existing HO's documentation on the quality aspects of the practical use of ENC's. IHO CL 51/2013 issued on this topic. To include recommendations of HSSC5-INF4, interface with IMO/HTW (Action HSSC5/45 refers).
E.1	Develop logic for indicators in current and proposed approaches.	H	DQWG9	2010	2014	O	Mike Prince		To be completed for submission to TSMAD28.
E.2	Demonstrate methods to mariners.	H	Follows S-100 demonstrator	2012	2014	O	DQWG	S-101	Build possible methods into ENC and ECDIS to demonstrate effectiveness.
E.3	Demonstrate methods to mariners	H	Follows E.1	2014	2015	P	C Howlett		Consider using Singapore Strait Marine Electronic Highways (MEH) project as a test case (Action HSSC5/47 refers)
F.1	Investigate areas of quality concern (other than survey/ bathymetry)	M	DQWG9	2010	Permanent	O	E Mong		SNPWG has responded, liaison on going.
H.1	Establish contact with other working groups to investigate scope of data quality items for the S-10x standards (e.g. TSMAD for S-102)	M		-	-	P			To specifically seek contact and collaboration with the TWLWG to include data quality elements into dynamic tide / water levels (Action HSSC5/46 refers)



# Action requested of HSSC

- ✦ To note this report
- ✦ To endorse the decision that developing a full underkeel clearance solution is beyond the remit of HOs.

