B-12 Guidance on Crowd-Sourced Bathymetry

Section 4: ~~Uncertainty~~ Data Quality Assessment

Last version – following DT inter sessional work

2022 January, 20

APPROACH TAKEN

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- Consensus among reviewers (Canada, Denmark, France, Norway): improve readability by refocusing on the *contributor*.
  - Remove parts targeting Trusted-Nodes and CSB users.
  - Reduce the error theory part

- Key changes:
  - Emphasis on data quality and consistency assessment (DQWG recommandation)
  - Emphasize that “all quality assessed data is better than no data”

OVERVIEW OF STRUCTURAL CHANGES

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ORIGINAL STRUCTURE

- Uncertainty
  - Introduction to Uncertainty
  - Meaning, Sources, and Consequences of Uncertainty
    - The Meaning of Uncertainty
    - Categorisation of Uncertainty
    - Estimation and Expression of Uncertainty
    - Uncertainty for Trusted Nodes and Data Users
      - Effects of Sensor Integration on Data Capture
      - Modelling Uncertainty
      - Consequences of Uncertainty
  - Uncertainty Guidance for User Groups
    - Data Corrections and Depth Calibration
    - Uncertainty Budget
    - Uncertainty for Trusted Nodes
    - Database Users

14 pages

REVIEWED STRUCTURE

- Data Quality Assessment
  - Introduction
  - Uncertainty Evaluation
  - Data Consistency
  - *Data Quality Report*

- *Annex D – Example of Data Quality Report*

6 pages

PROPOSED ADDITION: A DATA QUALITY REPORT

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2 aims with assessing and reporting data quality of CSB data:

- 1) Provide feedback to contributors to demonstrate the value of their effort and encourage further submissions
- 2) Determine potential for use of contributor submissions (NavWarn, gaps filling, etc.)

Feedback takes the form of a not prescriptive Data Quality Report articulated in 3 mains sections:

1) Overall rating (from 0 to 100%)
2) Usability rating
3) Series of recommendations to increase quality of further submissions

DATA QUALITY REPORT → PROPOSED WORKFLOW

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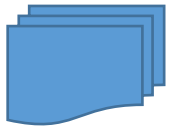
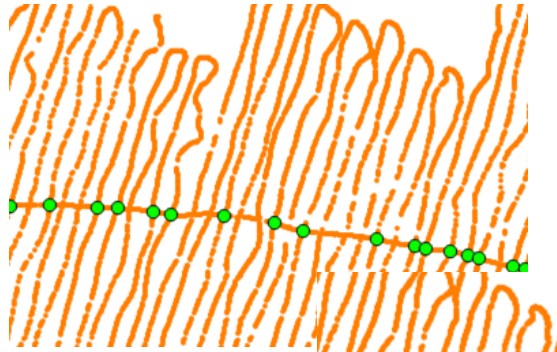
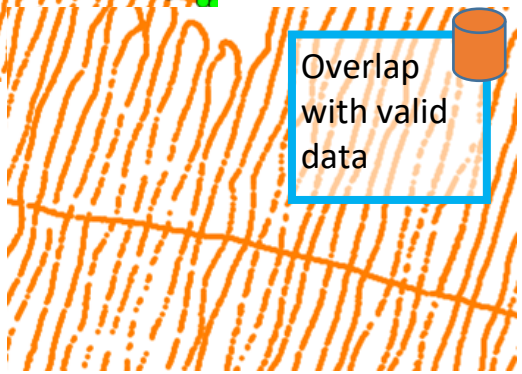
CSB Data & MetaData





Self-Consistency Assessment

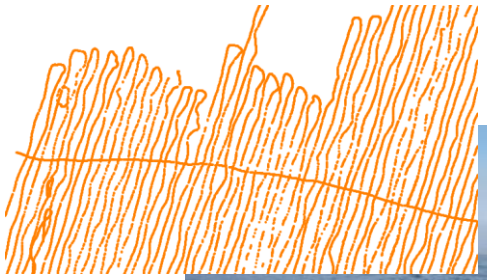


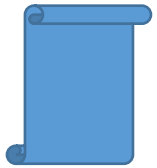
Peer-Consistency Assessment

Contributor

Trusted-Node / DCDB / HOs

Voluntarily not explicit in the doc





Report

Data Quality Assessment Report	General rating
	85%

Usability rating	
Charting update	80%
NavWarn Detection	60%
GEBCO Grid gap filling	100%
DCDB Integration	100%

Recommendations for next contribution	
Sensor Offsets	Correct
Sounder Draft	To be measured – will help water level sounding reduction
...	

PROPOSED AMENDMENTS

Ref to the text	Edition 2.0.3	Update text	Writing team notes
4.	Uncertainty	Data Quality Assessment (section renamed) - Refocusing the audience on the ~~mariner~~ contributor (see amendments for further discussion) - Emphasis on data quality and consistency assessment	Accepted at CSBWG11 and integrated in the proposed version
4.1	Introduction to Uncertainty	Introduction (paragraph renamed and lighten)	Accepted at CSBWG11 and integrated in the proposed version
4.1	Introduction to Uncertainty	Better highlight/reiterate : - the relevance of good metadata - that all quality assessed data is better than no data	Edward Hands (EH), Denis Hains (DH) proposed better wording during intersessional work Accepted during intersessional work and integrated in the proposed version
4.2	Meaning, Sources, and Consequences of Uncertainty	Uncertainty Evaluation (paragraph renamed and lighten) Reduce the error theory part: deletion of subparagraphs 4.2.1 ; 4.2.2 ; 4.2.3 ; 4.2.4	Accepted at CSBWG11 and integrated in the proposed version Acknowledged the value of the original information (see amendments for further discussion) (EH), (DH) proposed better wording during intersessional work Accepted during intersessional work and integrated in the proposed version

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PROPOSED AMENDMENTS

Ref to the text	Edition 2.0.3	Update text	Writing team notes
4.3	Uncertainty Guidance for User Groups & subsections	Deleted Substituted by “Data Consistency” (more later)	Accepted at CSBWG11 and substituted in the proposed version
4.3	Data Consistency	Improve the text (‘self-consistency’ and ‘peer-consistency’)	(EH) proposed better wording during intersessional work Accepted during intersessional work and integrated in the proposed version
4.4	n/a	New paragraph Data Quality Report	Presented at CSBWG11 (see amendments for further discussion) General agreement on the value of the proposal, Stuart Caie (SC) proposed better wording during intersessional work Accepted during intersessional work and integrated in the proposed version
Annex D	n/a	New annex	Presented at CSBWG11 (see amendments for further discussion)

AMENDMENTS FOR FURTHER DISCUSSIONS

Ref to the text	Points for discussion	Origin	Major or minor
Whole section	Consistency: collector or contributor ?	Jennifer Jencks (JJ) Consensus for our section found during intersessional work (DT meeting) Need to dock with other sections	m
4.2 Uncertainty Evaluation	Resurrection of some paragraphs of the original text	JJ and Brian Calder (BC) BC: ”The (hydrographic) community worked for YEARS to agree on the term "uncertainty". I think it would be a very bad error to try to change that now, particularly for a qualitative (no pun intended) term like "quality" that is, to all practical purposes, undefinable.” DH (supported by MaryRose Sheldon): “Uncertainty is a great word and should not disappear. But I suggest it is not the place here; the community targeted is broader than hydrographic. Simplification is always better. Especially in the context having this document accessible and for non-expert.” Samuel Harper (SH) and EH: Recognize uncertainty is a major component of Data Quality. Then use Data Quality Majority of people are in favor of keeping the text light.	m

AMENDMENTS FOR FURTHER DISCUSSIONS

Ref to the text	Points for discussion	Origin	Major or minor
4.2 Uncertainty Evaluation	Why should I care about uncertainty?	JJ EH proposes some wording to emphasis the importance of CSB and why people should contribute	m
4.3 Data Consistency	Usefulness of CSB to the nautical chart could be assessed using metaquality. Need for an added brief paragraph	EH DQWG docs may be a better place to dig into metaquality. The wording provided by EH to address the previous amendment may be sufficient to cover this one as well.	m
4.3 Data Consistency	Better target the potential entities which would be in charge of the Data Quality Assessment (considering adding Trusted Node)	JJ, EH, DH Mathieu Rondeau (MR): We recommend to be Trusted-Node agnostic in the text because we do not want to limit the assessment responsibility on the TN only. More than that, nobody seems open to commit in the B-12 saying they would be in charge of DQA. The potential entities are DCDB, Trusted-Node, HOs	m

AMENDMENTS FOR FURTHER DISCUSSIONS

Ref to the text	Points for discussion	Origin	Major or minor
4.4 Data Quality Report	Recommended **(not prescribed)** a feedback (i.e., a Data Quality Report) from the Trusted-Node/DCDB/HOs (voluntarily not explicit in the document) to the contributors. The **intent** is to stimulate the collector's participation and engagement. The format of the report is **not prescriptive**. An example is currently provided.	JJ Soft wording chosen (see proposed version). Consensus for our section found during intersessional work (DT meeting).	m