Working Group
Sea Level Quality Control and Data Processing (and Data Management)

XVIII GLOSS GE Meeting

13/03/2025

Participants tour de table: wish-list / concerns

Moderator: Begoña Pérez Gómez (Spain)

- **Jorge Nath (Ecuador):** clear methodology, including check-list steps and labels for different levels of quality
- **Julio Castro (Chile):** linked to a unified data acces in GLOSS: homogeneization towards a unique GLOSS data processing chain would be desirable (national institutions can have their own procedures)
- **Krisna Bucha (Mauritius):** standard manual and common methodology for storing, quality control and processing
- **Venkat Shesu Reddem (India):** data consistency at least through GLOSS data centers, including definition and agreement on required qc metadata
- **Víctor Huérfano (Puerto Rico):** include network performance monitorization: e.g. for real time data transmission, % of data received, completeness index, last update date, gaps and problems information
- **Stijn Vermaere (Belgium):** quality control can be done at several points for a timeseries (national, data center). Need to communicate/document what has been done at each station. Different QCs could impact the signal in th sea level

# Participants tour de table: wish-list / concerns

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- **Bart Vanhoorne (Belgium):** real-time automatic QC in VLIZ: use of standard/common approach, ensure the best algorithms are used, communicate well that the QC in VLIZ will not include a visual inspection from an expert, and use AI to replicate the role of human inspection.
- **Hironori HayaShibara (Japan):** JMA has a simple automatic QC for raw data and perform manual QC monthly. Need to develop automatic QC. Always need of manual inspection, open air sensors more challenging
- **Yuxi Jiang (China):** China has their own QC standards, need to improve knowledge share between countries to ensure there is no impact on the results.
- **Chanmi Kim (UK):** Some countries don't have man power to do QC and provide monthly means. It would be good to provide automatic QC software. Need to attach to the monthly means time series a description of the QC applied to the data. Same for the QC applied by the data centers
- **Bernardo Aliaga (Secretariat):** why not using bench-marks: same data sources and comparison of the final products after applying different existing QC software/algorithms/standards
- **Julio Castro (Chile):** the QC and data processing should be traceable and reproducible: need to include flags assignment in GLOSS data.

Where do we start from?

IOC-UNESCO, 2020
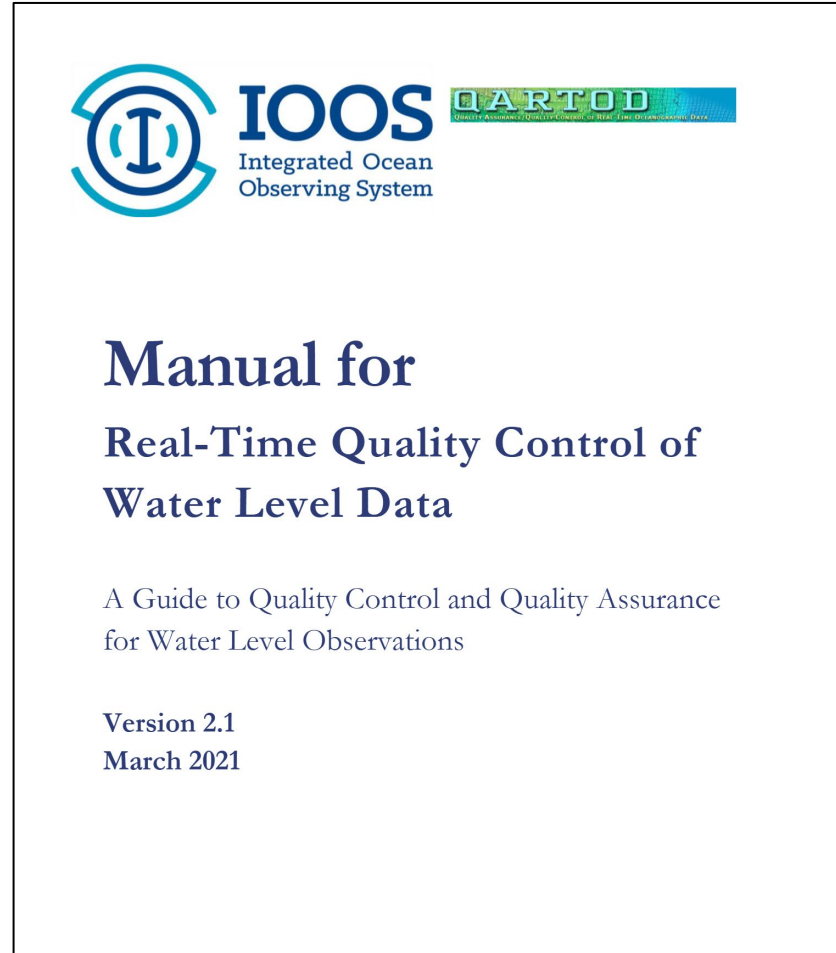
NOAA, 2021

Others:

- National institutions
- Data centers
- Regional networks and International programs
- Scientists/individuals

Continuous improvement/new tests and algorithms

Need to explore **AI tecniques**

Need to **update regularly** and ensure **common and well documented practices**

Recommendations and actions

1. ***Establish a permanent Working Group within the GLOSS Group of Experts on Sea Level Quality Control, Data Processing and Data Management, to be reflected in the future Implementation Plan.***
    *   *Subgroups for specific topics: e.g.: metadata, new algorithms/tests/techniques, unique GLOSS data processing chain, etc.*
    *   *Allow the possibility of inviting other experts working on these topics at national or regional level.*

2. ***Improve communication and knowledge sharing between national providers and data centers***, *including better and more easily accesible descriptions and documentation of the data processing chain for users*

3. ***Conduct regular surveys of national providers*** *regarding the status of their data processing chain and their capability to process, share, and update data in GLOSS data centers (e.g. monthly mean sea levels to PSMSL).*

4. ***Ensure that quality control metadata*** *(e.g. thresholds, QC parameters…) is considered part of the required metadata for each time series.*

5. ***Develop and improve metrics for network performance*** *and generate automated scripts to display these metrics on the GLOSS website*

6. ***Advance towards a unified data processing chain between data centers*** *as a second step in the on-going effort to create a single data access point in GLOSS*

Recommendations and actions

Actions for the Intersessional Period:

1. Terms of reference, membership and invitations to other experts

2. Description of existing manuals and initiatives, including publicly available code, visible on the GLOSS website

3. Review existing manuals and assess the potential need for updates or improvements

4. Compile examples of challenging time series (i.e. those difficult to flag and process using existing automated algorithms) to train future techniques based on Artificial Intelligence

5. Provide a standardized and open-access code to compute monthly mean sea levels, ensuring it can be applied to a large set of stations or used in countries lacking the necessary manpower (PSMSL?)

6. Bench-marks: test different quality control and processing standards with selected examples to assess the impact of various techniques in the final sea level products