

QARTOD

QUALITY ASSURANCE/QUALITY CONTROL OF REAL-TIME OCEANOGRAPHIC DATA

Quality Assurance / Quality Control of Real-Time Oceanographic Data and Ocean Best Practices System

Tools to Support Harmonized Glider Quality Control and Best Practices

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QARTOD Board of Advisors

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- **Christoph Waldmann / U of Bremen - MARUM**



QC Data Flagging (IOC standard)

- **Every real-time observation distributed to the ocean community must be accompanied by a quality descriptor.**
- **QARTOD (and IOC) suggest a Tier 2 flag for more detailed QC test results.**



Flag	Description
Pass=1	Data have passed critical real-time quality control tests and are deemed adequate for use as preliminary data.
Not Evaluated=2	Data have not been QC-tested, or the information on quality is not available.
Suspect or Of High Interest=3	Data are considered to be either suspect or of high interest to data providers and users. They are flagged suspect to draw further attention to them by operators.
Fail=4	Data are considered to have failed one or more critical real-time QC checks. If they are disseminated at all, it should be readily apparent that they are not of acceptable quality.
Missing Data=9	Data are missing; used as a placeholder.

QARTOD Process 1

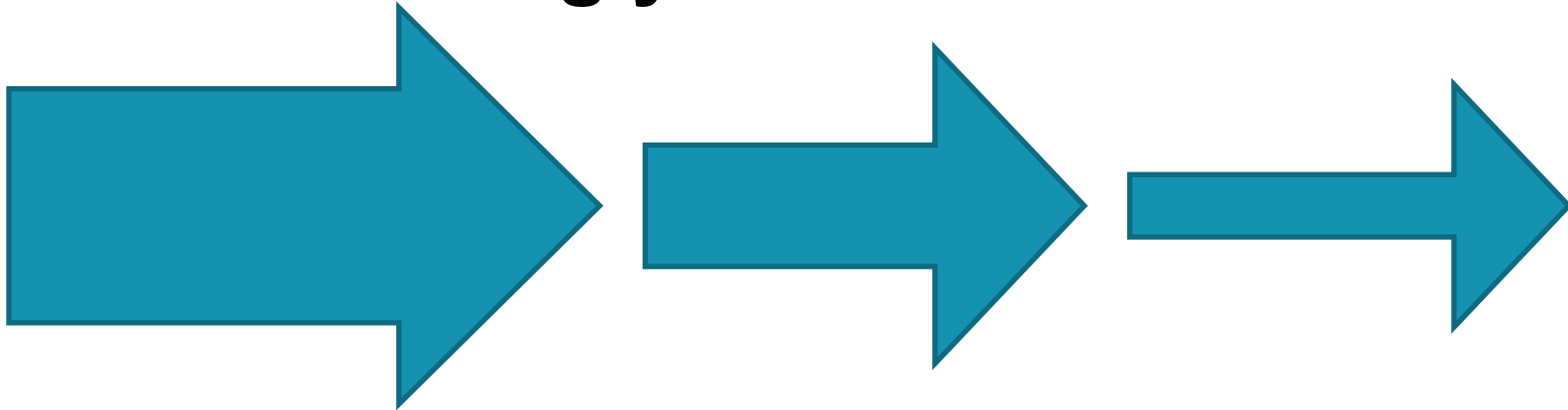
Stepwise process

- Identify reasonable variable / issue / topic
- Committee drafts initial document
- Review 1, edit
- Distribute to larger audience
- Review 2, edit
- Distribute to broadest audience
- Review 3, edit
- Committee approval
- Submit to supporting authoritative body

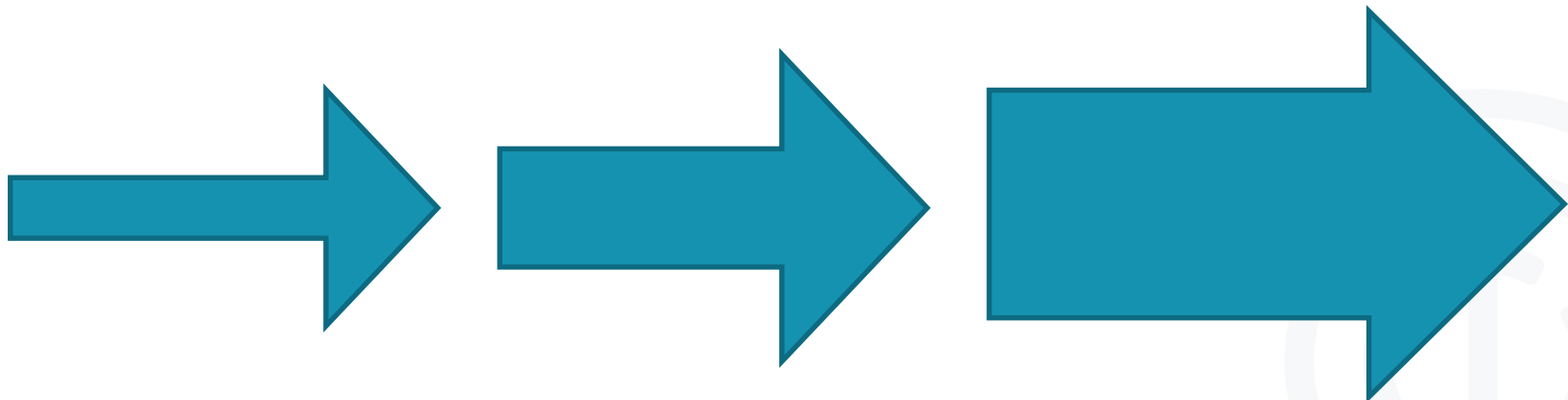
Adjudication matrix throughout

QARTOD Process 2

Increasingly refined document...



...to an increasingly larger audience



OceanBestPractices System:

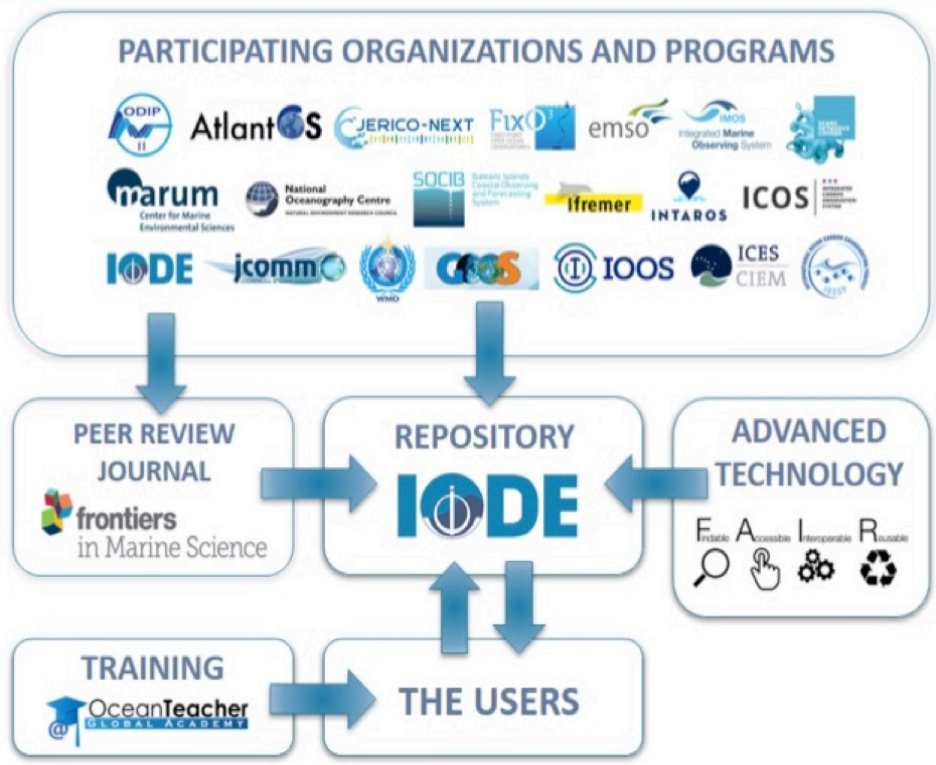
a global resource to facilitate harmonization of practices for ocean observations

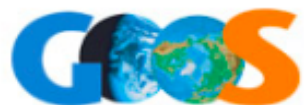
Repository: <https://www.oceanbestpractices.org>

A community best practice is a methodology that has repeatedly produced superior results relative to other methodologies with the same objective, and has been adopted and used by multiple organizations / communities.

Benefits to users:

- ☺ Living, sustained, comprehensive system for ocean observing practices
- ☺ All formats accepted (Papers, manuals, standard operating procedures, etc.)
- ☺ DOI assignment
- ☺ Improved visibility from search engines, improved search capabilities
- ☺ Greater Interoperability across programs and institutions
- ☺ Optional peer review through Frontiers in Marine Science
- ☺ Training resource



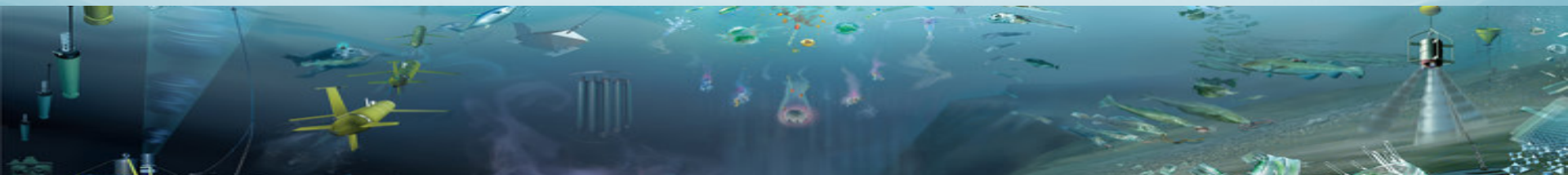


Best Practices Working Group:

Mark Bushnell	IOOS
Pier Luigi Buttigieg	AWI
Cindy Chandler	WHOI
Juliet Hermes	SAEON/JCOMM
Emma Heslop	GOOS/JCOMM
Johannes Karstensen	GEOMAR
Frank Muller-Karter	IMaRS, Univ S. Florida
Cristian Muñoz	SOCIB
Francoise Pearlman	IEEE
Jay Pearlman	IEEE
Peter Pissierssens	IODE
Nick Roden	Univ Bergen
Pauline Simpson	IODE



CCMI



Challenges for Ocean Best Practices (OBP)

Large investments in high quality measurements, however:

- Quality of OBP documentation varies widely
- Data and metadata formats are inconsistent
- Machine readability is limited (if at all)
- Sustainability is often not guaranteed
- Work creating OBPs is not often acknowledged
- OBPs are scattered and hard to find
- How can key OBPs be recognized



What does the community get?

- Access to extensive, trusted, broadly adopted documented BPs with semantic, smart searching
- Key community ‘endorsed’ BP (GOOS/JCOMM OCG)
- A sustained repository for BPs (DOIs, templates, ...)
- Peer reviewed publications and recognition
- Feedback on BP through the OBPS
- Linking beyond sphere of experts, recognition in other areas

Community service, acknowledgement of skills, feedback into process

Exploring additional activities

- Coordinate with new technologies, **links with other programs**
- Linking additional ontologies and ocean vocabularies
- Recognizing GOOS community 'endorsed' best practices
- Feasibility (technical and social) of implementing in developed and developing countries
- Capacity development and training; videos, social media
- Investigate areas for inter-comparison across disciplines,





← → ↺ 🔒 <https://www.oceanbestpractices.net/handle/11329/426>

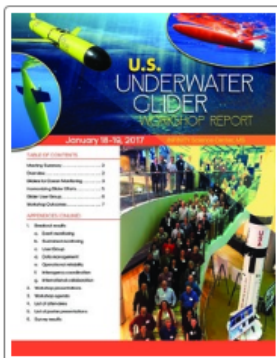


OceanGliders is a sustained observatory network that improves coordination for the collection, delivery and promotion of high-quality data from regular observations of regional ocean related phenomena such as boundary currents, water transformation, storms or polar regions. Contact: Victor Turpin - vtld@locean-ipsl.upmc.fr

Collections in this community

OceanGliders Community Practices [4]

Recent Submissions



2017 U.S. Underwater Glider Workshop Report, January 18-19, 2017

Baltes, Becky; Barth, Jack; Glenn, Scott; Kirkpatrick, Barbara; Legler, David; Mensi, Bryan; Rainville, Luc; Rudnick, Dan; Thompson, Andrew (Interagency Ocean Observation Committee, Washington, DC, 2017)

Autonomous underwater gliders provide an advanced and cost-effective mechanism for collecting essential oceanographic data at spatial and temporal scales that help the United States achieve critical research and operational ...



An assessment of the use of ocean gliders to undertake acoustic measurements of zooplankton: the distribution and density of Antarctic krill (*Euphausia superba*) in the Weddell Sea.

Guihen, Damien; Fielding, Sophie; Murphy, Eugene J.; Heywood, Karen J.; Griffiths, Gwyn (2014)

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Allen, John T. (1)



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The OBP repository has reached a milestone of over **700** best practices. This is nearly double what was available prior to the beginning of the OBP System project a little over a year ago.

Congratulations to the team and thanks to all of you in the community for your contributions of best practices!!

Synopsis – Two Existing Useful Tools!

Consider using a version of the following statement in proposals or paper abstracts:

“Using the process employed by QARTOD to create a series of community-embraced real-time QC manuals, and the supporting infrastructure offered by the OBPS, we have / propose to...”

Thank you!
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