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Interoperability in the marine domain through FAIR best practices and standards

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Presenter Organisations(s): **IEEE France**

BC26 Webinar

26 September 2023

Interoperability

Interoperability in ocean research and applications is fundamental for advancing our knowledge of the oceans, supporting sustainable practices, ensuring maritime safety, and responding effectively to ocean-related challenges.

Interoperability involves standardizing technologies, data and analyses methods to facilitate collaboration and information sharing among various stakeholders in the ocean community.

What are Best Practices?

A best practice is a methodology that has repeatedly produced superior results relative to other methodologies with the same objective (Pearlman et al 2019)

To be fully elevated to a best practice, a promising method will have been reviewed, adopted and employed by multiple organizations

- Created by the community for the community

Pearlman, J, et al, (2019) Evolving and Sustaining Ocean Best Practices and Standards for the Next Decade. Front. Mar. Sci. 6:277. doi: 10.3389/fmars.2019.00277

Ocean Best Practices System (OBPS)

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With the evolution of best practices and standards, a repository is needed to store the BP documents that provides easy discovery and access. The OBPS will provide this function for BC26. It also sustains methods for ocean information and knowledge from observations to applications.

The OBPS facilitates BP documentation, adds DOIs to the documentation and works with research and application teams to support interoperability. This includes convergence and endorsement of methods by community experts

OBPS collaborates with IEEE, who will be addressing system level standards and with OGC for interface, visualization and data standards

www.oceanbestpractices.org

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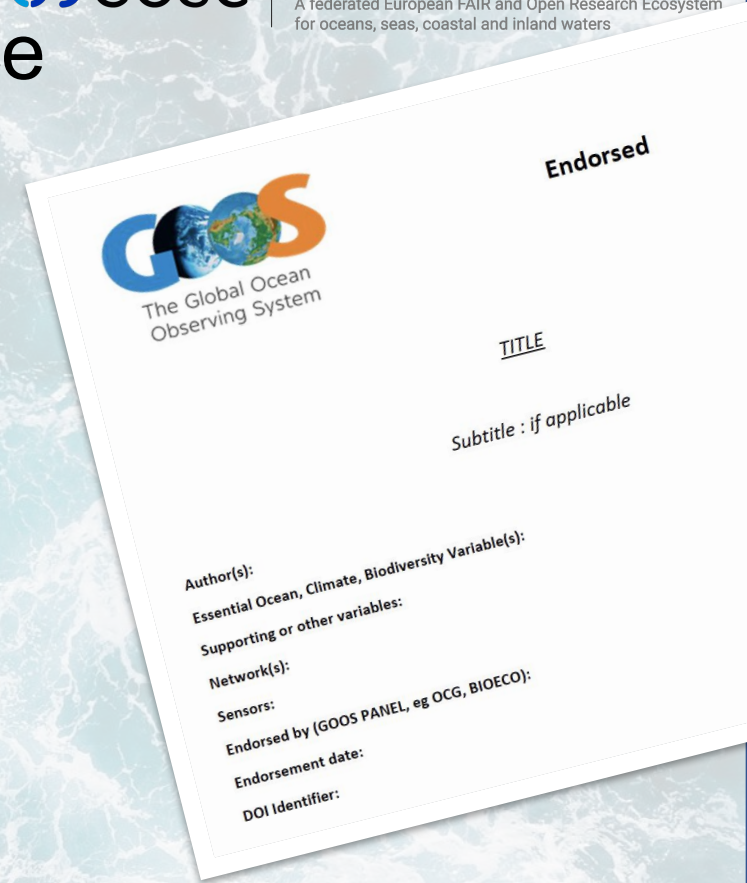
Ocean best practices

Endorsement of a best practice

Endorsement promotes the creation and promotion of best practices

- Identify key community best practices developed by the observing system community and used by multiple organizations
- Formally reviewed and selected by an expert panel
- Possibility for convergence addressed

[for details see Hermes, 2020 http://dx.doi.org/10.25607/OBP-926]



Maturity of a best practice

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	Stage	Description
5	**Mature**	Practices are endorsed by multi-institutional expert panels. Practices have formal diagnostic tools and user feedback loops supporting continuous improvement and optimization over the practice lifecycle. Practices have associated methods for training and sustainability. Practices are embedded into advanced information infrastructures.
4	**Broadly adopted**	Practices are widely adopted by multiple institutions. Practices with standardized formats and comprehensive metadata are in a sustained repository with DOIs assigned. Documents and metadata are machine-actionable. Practices have associated guidelines and metrics for their implementation, monitoring and evolution. Practices can be replicated with no prior experience in similar process.
3	**Defined and Documented**	Practices are formally defined and documented with metadata, are openly available, and can be replicated by independent practitioners with prior knowledge in similar processes.
2	**Repeatable**	Practices are defined and may be documented. They are repeatable by the process creator.
1	**Formation**	Practices are ad hoc with little documentation.

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Data and supplementary materials have sufficiently rich metadata and a unique and persistent identifier.

Findable

Accessible

Interoperable

Reusable

Metadata use a formal, accessible, shared, and broadly applicable language for knowledge representation.

Metadata and data are understandable to humans and machines. Data is deposited in a trusted repository.

Data and collections have a clear usage licenses and provide accurate information on provenance

Achieving FAIR requires the standardization of Best Practices and Standards

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Ocean best practices

Standards

A standard refers to a documented set of guidelines, specifications, or criteria that are established and accepted as the norm for a particular process, product, system, or practice.

Standards ensure consistency and uniformity in how things are done or produced. They provide a common language and set of rules that everyone can follow.

Standards can spur innovation by providing a baseline of accepted practices and requirements. Innovators can then build upon these standards to develop new technologies or approaches.

Bottom line for Standards and BP

Facilitating:

Trust

Interoperability

Inclusiveness

Best practices
Evolve from individually developed methods
Transition to best practices, endorsed practices and standards

Standards
Created through defined processes under Standards Organizations
Implemented through related best practices

All of these rely on creating and using documented standards and best practices

Thank You