

Objective 5: Visualization -
*Collaborating with ocean
product developer and ocean
services to improve visualization
and accessibility tools for
predictions and observations.*

Objective 5: Visualization

Short term 2026-2030

1. **Communication** : Create a **oceanpredict web page** to access and to promote
 1. existing visualisation tools available in operational centers/services
 2. existing ocean monitoring webpage
 3. advanced visualisation tools (3D/4D) freely available
2. **Co development** : Create a **oceanpredict Github** to share tools and notebooks
 1. To perform diagnostic and visualisation (for example IV TT metrics, monitoring indicators, intercomparison)
 2. For internal use in the community
 3. For external use, for training, for new operational centers ...
3. **Expertise** : Create a **oceanpredict agent** to facilitate visualisation, data processing and data access.
 1. Use oceanpredict expertise to test, validate, improve existing agent developed in the community.
 2. Define benchmark of these agents for dedicated use cases
 3. Provide feedback and recommendation to the community
 4. Identify and provide relevant documentation and data to upgrade and train oceanpredict agent

Crosscutting Task Team activities

Short term 2026-2030

- Strengthen collaboration between OceanPredict Task Teams, operational centers, and ocean service developers to align visualization tools with scientific outputs and user needs.
- Promote co-design workshops bringing together scientists, product developers, and users to improve usability and clarity of forecast visualizations.
- Provide feedback on existing visualisation tools already available, identify improvement as user of these tools developed (especially in Europe) in different framework (Copernicus, DestinE, EDITO ...)

Long term 2031-2040

- Maintain long-term communities of practice linking science, visualization, and user engagement.
- Ensure visualization development is fully integrated with modeling, data assimilation, verification, and observing system evaluation.

Leveraging UN Ocean Decade activities

Short term 2026-2030

- Use Ocean Decade frameworks to support pilot visualization tools demonstrating improved accessibility for different user groups, including non-experts.

Long term 2031-2040

- Ensure visualization tools developed under OceanPredict become a lasting legacy of the UN Ocean Decade, embedded in post-Decade operational services.
- Scale successful Ocean Decade pilot tools into sustained operational platforms coordinated by OceanPredict.

Key priorities (e.g. AI/ML transition, S2S)

Short term 2026-2030

- Support use of AI/ML-assisted visualization techniques (e.g. eddies and fronts detection, anomaly detection) while maintaining transparency.

Long term 2031-2040

- Develop scalable visualization solutions that support global, regional, and local applications, including resource-constrained environments.

Partnerships required (e.g. WMO, IOC-UNESCO, Ocean Decade initiatives, etc.) –

Short term 2026-2030

- Strengthen collaboration with WMO and IOC-UNESCO to align visualization standards and user-oriented practices.
- Work with the OceanPredict-DCC and Ocean Decade initiatives to ensure regional relevance and accessibility.
- Engage ocean service providers, technology developers, and regional institutions to co-develop and deploy tools

Long term 2031-2040

- Work closely with the OceanPredict-DCC to ensure strong regional implementation and user engagement.
- Foster sustained collaboration with regional operational centers, universities, and capacity-building institutions.

Other

Short term 2026-2030

- Promote open-source visualization tools and interoperable standards to lower barriers for adoption.
- Integrate capacity building and user training into visualization activities to ensure effective use of products.

Long term 2031-2040

- Invest in long-term workforce development, including skills at the science–data–visualization interface.