

## PPR “Océan & Climat “. Call for proposals for Ocean Data Challenges

**Context and Objective:** The PPR “Océan & Climat” aims to accelerate the development of AI-native solutions for the digital twins of the ocean (DTOs). As emphasised by recent advances in short-term weather forecasting, AI models require domain-specific benchmarks, also referred to as data challenges, that are used to evaluate their performance and track their improvement over time. The PPR “Océan & Climat” will support the development of such open data challenges for the uptake of AI-native solutions in the DTOs. These data challenges will provide experimental testbeds for future research, especially for postdoctoral fellowships (cf. Call for postdoctoral fellowships to be open early 2025).

Here, we invite proposals to specify and design up to four ocean data challenges. Each data challenge shall involve: (i) a specific problem (e.g., short-term forecasting of a specific variable), (ii) performance metrics (e.g., mean square error) with independent evaluation data (iii) baselines for benchmarking purposes, (iv) training datasets, (v) standardized ML-ready workflows for training and evaluation. We envision that the implementation of the data challenges will involve strong interdisciplinary interactions between experts in ocean science and AI.

Selected proposals will be implemented through a collaborative design between contributing research teams and the scientific and engineering support of the PPR “Océan & Climat” including the hosting of datasets and benchmarks.

**Selection Process:** The selection process will follow a two-step procedure. We invite proposals according to the template provided below (deadline: October 18, 2024). All proposals will be made public (see below). Under the supervision of the scientific committee, a collaborative phase (October 18, 2024 to November 29, 2024) will allow contributors to revise their proposals based on reviews, and possible recommendations for consolidating related proposals into a joint one. Through a final review round, the scientific committee will select up to four data challenges according to the evaluation criteria listed below (deadline: early November 2024).

### **Evaluation criteria:**

- Relevance of the data challenges with respect to topical objectives of the PPR “Océan & Climat”
- Potential impact of the data challenges to advance AI-native solutions in the DTO
- Expertise of the proposers in AI and ocean science
- Readiness of the data challenges in terms of datasets and benchmarks
- Resources allocated by the proposer to support the implementation of the proposed data challenge

### **Key dates:**

- Sept. 27, 2024: Open call for proposals for ocean data challenges
- Oct. 18, 2024: Deadline for the proposals of ocean data challenges
- Oct. 18-Nov. 29, 2024: Collaborative review and revision of candidate ocean data challenges
- Dec. 13, 2024: Publication of the selected ocean data challenges

**Template for Proposals**  
**Title**

**Description of the task:** (5/10 lines)

**Datasets:** Description of the proposed training, validation and test datasets (types, resolution, volume, etc.), of the required preprocessing steps

**Evaluation metrics:** description of the proposed evaluation metrics, including the associated computational complexity and preprocessing steps if any.

**Baselines:** description of the proposed baselines, both in terms of operational and learning-based baselines if any.

**Related scientific references:**

**Relevance of the proposal in terms of AI-native solutions for the DTO:** (5-10 lines)

**Relevance of the proposal in terms of topical demonstrations:** (5-10 lines)

**Scientific and technical staff involved:** Description of the key personnel for the proposal. For each member, provide a short (<5 lines) CV and describe the key ocean and/or AI expertise for the proposal.