



How can ocean reanalyses improve global ocean prediction? Towards a new ocean reanalysis intercomparison exercise

In October 2023, an ocean reanalysis workshop organized by Copernicus Marine Service held in Toulouse. As this workshop, the Copernicus Marine community has gathered but also international ocean reanalyses communities and beyond (e.g. atmospheric reanalyses, earth observations, model communities), the goal was to move towards collaborative initiatives for future development. The main objectives of this workshop were to (1) understand the users' needs for ocean reanalyses, (2) identify the strengths and weaknesses of current ocean reanalyses, and (3) establish the way forward toward the next generation of ocean reanalyses by improving different aspects of these products to meet users' needs and science ambitions (4) improve collaborations within the community. A survey before the meeting and a slido polls was used to collect the needs of the gathered community, 60 participants have attended in person (number deliberately limited for fruitful interactions) and 1400 were registered online. The oceanic components represented were, the physical ocean, sea ice, waves and the first trophic levels. A scientific paper in BAMS journal, describing this workshop is published (Yang et al. 2024). Here, first, we offer a restitution of the main results and outcomes of the 3 parts which made up this workshop: Applications for current and future ocean reanalyses (needs), Evaluation of ocean reanalyses (state of the art), future improvements of ocean reanalyses (developments). The major conclusions highlighted the needs of high-resolution, long-time series, uncertainty information for ocean reanalysis. Another major outcome of this workshop was the decision to launch a new intercomparison exercise within the ocean reanalysis community. So, secondly, we therefore also propose to present the main advances of this international effort which planned to start in 2025. This effort would be done at global scale but also for regional applications.

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