

Advancing ocean data assimilation towards a JEDI-based framework at the UK Met Office

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Abstract

At the UK Met Office, we are implementing capability for ocean observation processing and data assimilation (DA) using the Joint Effort for Data assimilation Integration (JEDI) framework, whilst maintaining our existing collaboration on NEMOVAR. This will maintain state-of-the-art ocean DA capabilities and allow us to advance towards strongly coupled ocean-atmosphere DA. The JEDI framework allows modular flexibility in the ocean DA, is portable for a changing technological landscape with new generations of HPC, and would increase collaboration between ocean and atmospheric DA groups at the Met Office since the atmospheric DA is also being moved to use JEDI.

Operationally, the observation processing and quality control in our ocean and atmospheric systems are successfully using the JEDI-based Observation Processing Application (JOPA). Recent R&D scoping work has shown that it is feasible to use the JEDI framework to carry out ocean DA on NEMO grids while calling components of the NEMOVAR software, for instance the implicit diffusion operator for modelling spatial background error correlations. Here we present our progress towards a JEDI-based ocean DA system. The expectation is that this will put us in a strong position to capitalise on the various benefits that using JEDI for ocean DA could bring, including a unified framework for coupled DA, in the future.