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Numerical needs of ecosystem models included in ocean models

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Marine hydrodynamic models, in addition to simulating ocean physics, also act as a host for marine biogeochemical models. The latter can be typically, but not always, formulated as a set of partial differential equations, which complement the passive transport of matter concentrations by their local change through biogeochemical processes. Numerical solvers mostly use the mode-splitting method, alternating between local biogeochemical changes and advection or mixing. Since the set of ODEs which forms the ecosystem model mostly represents a strong simplification of reality anyway, the exact approximation of the unknown analytical solution is often considered less important compared to the preservation of properties of the ODE system. This talk will focus on the limitations this imposes to the architecture and numerics of the physical host models and on the two-way interaction between these and their biogeochemical guest components.

Do you need an official invitation letter?

No

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