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Global FESOM simulations under the framework of interannual Coordinated Ocean-ice Reference Experiments (CORE-II)

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The Finite Element Sea ice-Ocean Model (FESOM) provides the possibility to simulate ocean and sea-ice on global unstructured meshes with a regional focus. Fine-scale processes can be studied with less computational resources than in traditional models using fine resolution everywhere. Simulations using ocean-ice models are less costly than using fully coupled systems. They can be used to reproduce the historic ocean and ice conditions, thus helping with understanding particular processes in the ocean. However, ocean-ice models widely used in the ocean modeling community are found to have large spread in many diagnostics even under a common surface forcing (Griffies et al., 2009). To understand the behavior of global FESOM in long-term simulations, we carry out ocean-ice simulations using the 60 years (1948-2007) interannually varying forcing provided by Large and Yeage (2009), that is, the CORE-II experiment. The simulation is conducted using nominal one degree horizontal resolution. Five realizations are used to spin up the ocean to have the upper ocean in a quasi-equilibrium state. The free-surface model option is used to allow for surface freshwater forcing. A weak surface salinity restoring is applied for all the realizations. We will present our preliminary analysis of the model results in this poster. This work will also provide experience and an initial point for global FESOM simulations with particular regional interest.