

A Meshless Approach to Spectral Wave Modeling

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Ocean surface gravity waves are an important component of the atmospheric and oceanic boundary layer and the inclusion of such in a global climate model can reduce model biases and improve air-sea interactions. However long climate runs with existing spectral wave models are computationally expensive and grid resolutions tend to be low. Here, we will present an RBF-FD prototype that solves a wave action balance equation in a coupled 2D spatial and 1D directional domain. The prototype is an order of magnitude more accurate than existing models (with computational domains an order of magnitude larger) and shows promise as a new numerical approach to global ocean wave modeling.