

## **Radial Basis Function-generated Finite Differences for Atmospheric Modeling**

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Radial Basis Function-generated Finite Differences (RBF-FD) have the ease of classical FD and provide any order of accuracy for arbitrary node layouts in multi-dimensions, naturally permitting local node refinement. Furthermore, algorithmic complexity does not increase with dimension. They also have been shown to be highly competitive compared to other state-of-the-art numerical methods in the arena of computational geoscience. In recent benchmarking tests on computer accelerated platforms as GPUs and MIC coprocessors, they have scaled well due to the sparse compact structure of their differentiation matrices. We will demonstrate the performance of the RBF-FD method on both shallow water and nonhydrostatic atmospheric test cases.