

## 8.5 Variable-resolution global NWP with MPAS

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The nonhydrostatic atmospheric solver in the Model for Prediction Across Scales (MPAS) uses a centroidal Voronoi mesh (nominally hexagons) to tile the sphere. The Voronoi mesh allows for both uniform tiling of the sphere and for local refinement where the transition between mesh resolutions is smooth. MPAS is based on WRF numerics and uses a subset of WRF physics. It is being developed to provide an alternative to global WRF and its problematic latitude-longitude mesh, and to alleviate problems associated with traditional grid nesting such as that used in WRF. We will provide an update of MPAS development, and we will show examples from tropical cyclone forecasts illustrating the benefits of this approach compared to the traditional grid nesting used in WRF.