**A modified TRiSK scheme to address instabilities found in MPAS-Ocean**

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In MPAS-O the horizontal discretization used is the TRiSK scheme, a C-grid, finite-volume method applied to Spherical Centroidal Voronoi Tessellations (SCVTs) where the mass, tracers, pressure and kinetic energy are defined at centers of the convex polygons and the normal component of velocity is located at cell edges. This method has many desirable mimetic properties, in spite of possessing low order of accuracy and inconsistencies that may constitute a potential problem for high resolution 3D models.

In this work, we investigate a modification for the TRiSK scheme that will make it first order accurate in the maximum norm. This modification consists of positioning the velocities on midpoints of the edges of the Voronoi cells, instead of the midpoint of the dual triangle edges.

Preliminary tests on the shallow water equations are presented.

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