



Vertical Spectral Elements in the CAM-SE Atmospheric Dynamical Core

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The CESM and ACME climate models make use of low order representations of the atmospheric column. Recently, increased vertical resolution has been shown to be critical for resolving important phenomena such as the QBO, but the computational cost of doubling the vertical resolution can be prohibitive. A high order spectral-element vertical representation has the potential to alleviate this problem by improving solution accuracy at a fixed resolution, or by reducing the computational cost for a given accuracy target. Phenomenological and performance impacts of this approach are investigated for the CAM-SE atmospheric dynamical core.