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The GFDL Finite-Volume Cubed-Sphere Dynamical Core: Design and Prospects for Global and Unified Modeling

Wednesday, 16 September 2020 14:30 (45 minutes)

The GFDL Finite-Volume Cubed-Sphere Dynamical Core, or FV3, is designed to be an accurate, efficient, and adaptable dynamical core useful for a variety of weather and climate applications. In this talk, I discuss how FV3 is designed, implemented, and used. I recapitulate the history of FV3's development from S-J Lin's original finite-volume advection scheme, to the vertically-Lagrangian FV dynamical core, and to the present-day all-scale nonhydrostatic FV3 core. The motivations and philosophy behind the discretizations of FV3 are discussed. I conclude with a discussion of FV3's moist thermodynamics, integrated physics, and prospects for unified modeling with FV3-based models.

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Session Classification: Moderator: Michail Diamantakis (ECMWF)