

An Introduction to an Ongoing Atmospheric Model Development Effort at CAS, IIT Delhi †

Sarvesh Kumar Dubey ^{1,*}

¹ Centre for Atmospheric Sciences, IIT Delhi, India;

* Correspondence: skdubey@cas.iitd.ac.in (S.K.D.);

† Presented at Virtual International Conference on Physical Sciences (ICPS - 2021)

Received: 1.02.2021; Revised: 3.02.2021; Accepted: 4.02.2021; Published: 5.02.2021

Abstract: Atmospheric Science is a highly interdisciplinary area, and it requires skills and expertise from various fields. To predict weather and climate and study our changing climate, scientists often employ mathematical models of varying complexity. This presentation will briefly introduce the problem of atmospheric modeling, emphasizing the need of students from mathematics and computing backgrounds. Later, a basic detail of icosahedral dynamical core DYNAMICO, an ongoing model development effort at Centre for the atmospheric sciences (CAS) IIT Delhi in collaboration with LMD France, will be presented. DYNAMICO solves hydrostatic primitive equations in a hybrid mass-based vertical coordinate and employs the Hamiltonian formulation of the equations of motion to discretize these equations consistently.

Keywords: DYNAMICO; hydrostatic primitive equations; Hamiltonian formulation.

© 2021 by the authors. This article is an open-access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

Funding

This research received no external funding.

Acknowledgments

This research has no acknowledgment.

Conflicts of Interest

The authors declare no conflict of interest.