Dynamical Core Model Intercomparison Project 2016 Workshop
National Center for Atmospheric Research Center Green
June 6th – 17th, 2016

Daily Agenda (Days 1-9)
8:00am: Bus pickup at CU Dorms
8:30am – 9:30am: Lecture 1
9:30am – 10:30am: Lecture 2
10:30am – 11:00am: Break
11:00am – 12:00pm: Lecture 3
12pm – 12:20pm: Model mentor presentation 1
12:20pm – 12:40pm: Model mentor presentation 2
12:40pm – 1:40pm: Lunch
1:40pm – 3pm: Workshop
3pm – 3:30pm: Afternoon science session
3:30pm – 3:45pm: Discussion and break
3:45pm – 5:00pm: Workshop
5:15pm: Bus pickup at CG

Theme 1 (06/06/2016): Earth System Modeling and the Role of the Atmospheric Component Model

Introductions and Context
Paul Ullrich, University of California Davis

The components of a general circulation model
Christiane Jablonowski, University of Michigan

Organizational issues
Paul Ullrich, University of California Davis

Science Session: Baroclinic wave, tropical cyclone and supercell
Paul Ullrich, University of California Davis

Welcome and ice breaker reception following conference

Theme 2 (06/07/2016): Numerical Methods in Dynamical Cores

Spatial Discretizations I: Local Methods
Ram Nair, NCAR

Time-stepping schemes and numerical stability
Hilary Weller, University of Reading

Spatial discretizations II: Desirable properties
Hilary Weller, University of Reading

Model mentor presentations (NICAM and GFDL/FV3)

Group Photograph

Afternoon Poster Session

Science Session: The impacts of numerical schemes on asymmetric hurricane intensification
Stephen Guimond, University of Maryland

Theme 3 (06/08/2016): High-Resolution Atmospheric Modeling

Introduction to high-resolution atmospheric modeling
Bill Skamarock, NCAR

Variable resolution modeling
Colin Zarzycki, NCAR

Applications of high-resolution modeling
Kevin Reed, Stony Brook University

Model mentor presentations (NEPTUNE and GEM)

Theme 4 (06/09/2016): Tracers in Atmospheric Models

Transport in climate-weather models
Peter Lauritzen, NCAR

Desirable properties of transport schemes
Peter Lauritzen, NCAR

Numerical methods for tracer advection
James Kent, University of South Wales

Model mentor presentations (HOMME and TEMPEST)

Science Session: r-adaptivity and mesh redistribution
Hilary Weller, University of Reading

Theme 5 (06/10/2016): Physical Parameterizations

Cloud Parameterizations
David Randall, Colorado State University

Orographic parameterizations
Julio Bacmeister, NCAR

Stochastic physical parameterizations
Judith Berner, NCAR

Model mentor presentations (DYNAMICO and ECMWF)

Friday pizza lunch and discussion

Science Session: Evaluating dynamical cores with stochastic parameterizations
Aneesh Subramanian (Oxford University)

Weekend Activities
Saturday morning hike in Chautauqua area and catered lunch

Theme 6 (06/13/2016): Dynamics-Physics Coupling

Introduction to dynamics-physics coupling
Peter Caldwell, Lawrence Livermore National Laboratory

Resolution sensitivity of physical parameterizations
Peter Caldwell, Lawrence Livermore National Laboratory

The important role of physics/dynamics coupling
Richard Rood, University of Michigan

Model mentor presentations (CSU and MPAS)

Science Session: Adding physical complexity to dynamical cores
Isaac Held, Geophysical Fluid Dynamics Laboratory

Theme 7 (06/14/2016): Evaluating Global Atmospheric Models

Evaluating global climate models: Understanding observations and the tools of the trade
David Schneider, NCAR

Assessing and tuning model parameterizations
Cecile Hannay, NCAR

Determining metrics of success in climate models
Rich Neale, NCAR

Model mentor presentations (OLAM and ICON)

Science Session: Emergent constraints on climate sensitivity
Peter Caldwell, Lawrence Livermore National Laboratory

Theme 8 (06/15/2016): Emerging computational aspects

Trends in parallel computing
Rich Loft, NCAR

Extreme weather detection and characterization
Colin Zarzycki, NCAR

Big Data: The view from climate science
Seth McGinnis, NCAR

Model mentor presentations (Chombo and ENDGame)

Science Session: Challenges in atmosphere-ocean coupling in high-resolution climate models
Colin Zarzycki, NCAR

Theme 9 (06/16/2016): Informing the science

Beyond test cases of intermediate complexity
Jean-François Lamarque, NCAR

A hierarchy of models for studying the climatology of tropical cyclones
Isaac Held, Geophysical Fluid Dynamics Laboratory

Some problems related to sub-grid closures in atmospheric and oceanic models
Isaac Held, Geophysical Fluid Dynamics Laboratory

Afternoon Student group presentations

Thursday evening BBQ

Theme 10 (06/17/2016): Dynamical Core Model Intercomparison, what did we learn?

8:30 - 10:30am: Student group presentations
10:30am - 11:00am: Break
11:00am - 11:45am: Student group presentations
11:45am - 12:45pm: Discussion and Q&A session, student reviews
12:45pm - 1:45pm: Lunch
2pm: Bus leaves for CU dorms (free afternoon and evening for students)

2:15pm: Afternoon meeting: Review of the workshop and summer school
Modeling groups and organizers