



Joint Seminar

Hybrid Mode

INDIAN INSTITUTE OF TROPICAL METEOROLOGY (IITM), PUNE & CENTRE FOR DEVELOPMENT OF ADVANCE COMPUTING (CDAC), PUNE

Abstract

The Conformal-Cubic Atmospheric Model (CCAM) has been developed at CSIRO over a number of years. CCAM is formulated on the conformal-cubic grid, and employs 2-time-level semi-Lagrangian semi-implicit numerics. The model has mainly been used in dynamical downscaling studies of climate change, but is also used for specialized numerical weather prediction applications. CCAM employs reversible staggering for the wind components (McGregor, MWR, 2005), producing good wave dispersion behavior and also good behaviour for the kinetic energy spectra. For treatment of non-hydrostatic flow, CCAM utilizes the highly efficient equations of Miller and White (QJRMS, 1984).

The presentation will briefly describe selected aspects of the CCAM formulation. Some applications will then be shown for high resolution climate downscaling. Some recent NWP simulations will also be shown for a 2022 flood event in Durban, a 2015 flood event in Vietnam, and some trial simulations of severe Hurricane Ian which crossed into Florida late last year.

About Speaker

Dr. John McGregor obtained his Ph.D. in computational fluid dynamics from Monash University. John has been conducting research into atmospheric model development and dynamical downscaling for over 40 years. He worked on several climate and weather models, before developing the DARLAM limited-area atmospheric model, then the CCAM variable-resolution global model, which is used at several institutions for climate downscaling. John's research interests include model development, model intercomparisons, dynamical downscaling, numerical techniques and physical parameterizations. He is presently a retirement fellow at CSIRO Environment.



Speaker

Dr. John McGregor,
Retired Fellow, CSIRO Australia

Title

The Conformal Cubic Atmospheric Model and
some applications

Date & Time

14 March 2023 Tuesday at 9.30 AM

Venue

Varahamihir Hall, Indian Institute of Tropical
Meteorology, Pune 411008

www.tropmet.res.in

<https://youtu.be/SA1Ui5eKciE>