RAL3 LFRic simulations in tropical domains

Richard Jones, Met Office

Significant technical development work over the past year has enabled regional configurations of the Unified Model and LFRic to be run side-by-side within a single workflow. While much of the initial focus has been on enabling stable LFRic simulations for UK regional domains, technical work has been done in parallel with colleagues at the Bureau of Meteorology to ensure HPC site portability. Here I present initial results from deterministic and ensemble simulations utilizing RAL3-LFRic in tropical domains, with simulations focussed on the Darwin domain.

The primary focus of this presentation will be to characterize the behaviour of RAL3-LFRic in the tropics. Understanding how RAL3-LFRic differs from RAL3-UM and how quickly and where those differences emerge is another critical question that I will begin to address here. The results presented here should provide a baseline understanding of the relative strengths and weaknesses of the RAL3-LFRic configuration in the tropics. Deterministic and ensemble simulations will focus on case studies that have been selected to span a variety of different weather conditions, including high-impact weather events and tropical cyclone case studies. Future work will build on this case study analysis to assess the performance of RAL3-LFRic over longer timescales and across a variety of tropical domains.