The ocean-coupled global cloud-resolving modeling era

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Developments of global cloud/cloud-system resolving models are recently in full activity in many modeling centers, with 9 members participating in a model inter-comparison project called the DYnamics of the Atmospheric general circulation Modeled On Non-hydrostatic Domains (DYAMOND). With the aid of the supercomputers, they are eyeing to become the main-stream in the next generation models for global simulations in the seasonal to multi-decadal range. Implementation of a fully dynamical ocean model is certainly an essential component in these developments. NICAM, a front-runner in DYAMOND project, can be coupled to COCO, the ocean component of a global climate model MIROC. The coupled version is called NICAM-COCO, or NICOCO, and is now being tested in pilot studies that involve atmosphere-ocean interactions.

An overview of these early studies will be presented, including how convection is affected by the existence of fine-scale ocean fronts, and how the Madden-Julian oscillation affects the initiation and termination of ENSO.

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