

Séminaire 17 Juin 2011 11h / Seminar June 17th 2011 11h

Conférencier/Lecturer: Hugh Morrison (NCAR)

Sujet/Subject: Representation of microphysics in models (and why it matters...)

Présentation/Presentation: Anglais / English

Lieu/Room: Salle des vents (Dorval)

wiki: https://wiki.cmc.ec.gc.ca/wiki/RPN_Seminars

iweb: <http://web-mrb.cmc.ec.gc.ca/mrb/rpn/SEM/>

web: <http://collaboration.cmc.ec.gc.ca/science/rpn/SEM/index.php>

Abstract

Clouds and precipitation remain fundamental challenges in numerical simulation of weather and climate. The parameterization of cloud and precipitation microphysics is critical because of its impact on latent heating/cooling, coupling with radiative transfer, and precipitation at the surface, and it has a direct impact on the dynamics across a wide range of spatial and temporal scales.

Various approaches for parameterizing cloud and precipitation microphysics will be described, with an emphasis on its representation in cloud system-resolving models applied to organized deep convection. Key uncertainties in current microphysics schemes will be discussed following recent work, including representations of rain drop size distribution and characteristics of precipitating rimed ice (hail and graupel); these results are contrasted with sensitivities to other model aspects such as horizontal grid spacing. Finally, the indirect effects of aerosols on deep convection (through the impact on cloud microphysics) will be discussed.