



CNRM, UMR 3589

SEMINAIRE CNRM

jeudi 2 décembre 2021 à 11h

HYBRID RESOLUTION ATMOSPHERE : FOCUSING RESOLUTION WHERE IT'S MOST NEEDED

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Lien visio : <https://bluejeans.com/715108137/4349>

Abstract:

An Earth system model contains numerous scientific components. Some, such as the core dynamics and moist parameterizations, are known to benefit from higher model resolution, others, such as aerosols and chemistry are computationally expensive but there is less evidence of a direct performance benefit from increased model resolution. In this talk I describe the development of a UKESM hybrid resolution model, which runs two atmospheres: one, referred to as Senior (Snr), at a higher resolution without the computationally expensive chemistry and aerosol; and one, referred to as Junior (Jnr) at a lower resolution containing all the Earth system science including chemistry and aerosol. These atmospheric models are run concurrently and coupled together with the OASIS3-MCT coupler. I explain how the physical atmosphere of the Jnr atmosphere is locked to that of Snr, and that Jnr provides the chemistry and aerosol required by Snr. Running two atmospheres in this way is about 65% faster than running all the science at the higher resolution. I also explain the special treatment of convection in this model and provide scientific evaluation.

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