**CNRM, UMR 3589**

# SEMINAIRE CNRM

## *jeudi 1$^{er}$ juin 2023 à 10h*

## PROMISING APPROACHES FOR MACHINE LEARNING PARAMETERIZATION OF SUB-GRID PROCESSES

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### en salle Taillefer

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Résumé:

Machine learning of sub-grid parameterizations has attracted increasing attention in recent years. This can range from emulation of existing model components in order to reduce their computational cost, to learning convective or unified parameterizations from high-resolution simulations. Typically, regular feed-forward neural networks have been used, flattening the vertical profiles of several variables into inputs and outputs. However, processes such as radiation and convection are vertically non-local. A better modeling framework may be to consider the vertical column as a sequence and use recurrent neural networks (RNNs) to traverse it. Here it's applied to different sub-grid processes (e.g. gravity waves, radiation and moist physics) in an offline setting and shown to outperform previous ML approaches.