MMM SEMINAR SERIES

Mesoscale & Microscale Meteorology
MMM LABORATORY

Physically-based stochastic parameterization and the gray zone

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Parameterization of unresolved processes in numerical models is often based on the assumption of a scale separation between the resolved and unresolved motions. If this assumption is not satisfied, we find ourselves in a "gray zone", where the interaction between resolved and parameterized flow is not well-defined.

The first part of this talk will argue that the representation of grey zone processes is intrinsically stochastic, and show examples of how simple representations of this variability, based on a physical understanding of the partially-resolved processes can lead to systematic improvements in model behavior.

The second part of the talk will present recent results on convective initiation in convection-permitting models, showing how stochastic and deterministic parameterizations can improve the representation of grey zone processes. We address the lack of variability of boundary layer turbulence by a Physically based Stochastic Perturbation scheme (PSP) and reduce systematic model biases due to unresolved cold pool gust fronts by a new Cold Pool Perturbation scheme (CPP).

Thursday, 29 April 2021, <u>10:00AM (MDT)</u>
*Please note special time

For Zoom information, please contact
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Seminar will also be live webcast
https://operations.ucar.edu/live-mmm

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