

MMM SEMINAR SERIES



Flow-dependent forecast uncertainty at convective scales

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In this talk we will explore the beneficial influence of a novel stochastic perturbation scheme on forecast uncertainty and error. The physically based stochastic perturbation scheme PSP has been implemented in the convection-permitting ICON-D2 ensemble prediction system at DWD and run for a three-month trial experiment in summer 2021. The scheme mimics the impact of boundary layer turbulence on the smallest resolved scales and impacts in particular convective precipitation. A weather regime-dependent systematic evaluation shows that PSP efficiently increases ensemble spread of precipitation in weak synoptic forcing, while producing realistic convective structures. During strong forcing, the effect of the scheme is negligible, as expected by design. The scheme leads to a reduction in spatial error at scales larger than 20 km and increases the spread at scales less than 50 km during weak forcing of convection, whereas the effect is almost neutral during strong forcing. A probabilistic verification shows improvements in the forecast skill of other variables as well, especially the spread to skill ratio, but identifies starting points for further improvements of the method.

Wednesday, 6 December, 2023, 11:00AM

Refreshments 10:45AM

Please also join colleagues for refreshments and informal discussion after the seminar until 12:30pm

NCAR-Foothills Laboratory, 3450 Mitchell Lane

FL2-1022, Large Auditorium

Seminar will also be live webcast

<https://operations.ucar.edu/live-mmm>

Participants may ask questions during the seminar via Slido.