

Examining the Impact of Microphysics Parameters in Simulations of a January 2019 Vermont Winter Storm

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Using the Weather Research and Forecasting (WRF) model, we conduct simulations of a major winter storm that brought up to 20 inches of snow to parts of Vermont on 20-21 January 2019. In WRF simulations, different microphysics schemes yield different model outputs. We employ a sensitivity test using the Thompson, Morrison 2-moment (M2M), WRF Double Moment 6-class (WDM6), and Eta (Ferrier) microphysics schemes to analyze snowfall totals during the Vermont storm at a near sea level location in Middlebury, VT and at a mountain location in Rochester, VT. We find that the Thompson microphysics parameterization predicts snowfall totals that fall most in line with observed snowfall from the storm, while WDM6 and M2M schemes grossly overpredict snowfall, and the Eta simulation underpredicts snowfall.

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