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Convective Rainfall in the North Central and Northeastern United States during the Spring, Summer and Fall Seasons RICHARD STIMETS, STEPHANIE LANE, AFRIM ALIMETI, University of Massachusetts Lowell — Fifteen-minute precipitation data from over 1000 stations covering 26 states of the north central and northeastern United States for the 30-year period 1971-2000 has been analyzed to produce maps of the amounts and diurnal distributions of four levels of convective rainfall. Overall, as the level increases, the maps show increasing geographical nonuniformity, increasing fall/spring asymmetry skewed toward the fall, and significant changes of up to five hours in the dominant hour of convective rainfall. These results can serve as a stringent test of climate models which attempt to predict the amounts and timing of convective rainfall under current conditions and under the altered conditions expected from global warming. Clearly, many factors other than diurnal solar heating, such as terrain type, latitude, proximity to large bodies of water and continental-scale airflows are important and must be represented better by climate models if the models are to make trustworthy predictions about changes in precipitation due to global warming. Improved models should also include multiple levels of convective rainfall.

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