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Modeling Irrigation Impacts on Atmospheric Conditions during the 2012 Historic Drought

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- 75: Modeling Irrigation Impacts on Atmospheric Conditions during the 2012 Historic Drought

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- Boston Convention and Exhibition Center, Hall B

Various human activities have been affecting and modifying our environment and atmosphere for thousands of years in a number of ways. One of the more recent forcings identified to have major impacts is land use land cover change (LULCC). A variety of past studies using both modeled and observed data have agreed that since LULCC has a significant impact on the climate, it is important to understand these effects accurately at appropriate scales. It is found that irrigation is one of the more common types of LULCC in the Great Plains and has impacted weather and climate in this region.

This study aims to investigate the potential impacts of irrigation on atmospheric conditions during the historic 2012 drought. This drought was widespread over a large part of the U.S. including the Great Plains and its irrigated regions. Simulations are completed using the Weather and Research Forecasting (WRF) model focusing on conditions during the growing season of 2012. Simulations with different soil moisture levels are compared to see the differences in resulting atmospheric conditions. For further comparison, results from the 2012 growing season are compared to the growing season of a normal precipitation year.

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