

P16 The driving thermodynamic force of pyrocumulus formation

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There is still uncertainty within the wildland fire research community about whether sensible and/or latent heat is driving the development of pyrocumulus. The goal of this study is to decipher how the release of water vapor and sensible heat affect pyrocumulus development. Through the use of WRF-fire, both sensible and latent heat will be evaluated for the Region 23 Complex fire in northwestern Nebraska. WRF will be run in Large Eddy Simulation (LES) mode with 60 meter grid spacing which provides an ideal modeling environment for analyzing how topography, fire fuels, and weather all played a role in the formation of pyrocumulus. Identifying whether the main source of moisture is from environmental entrainment or from the fire will be a main objective. This will be done by analyzing the moisture budget within WRF-fire. A control run without fire will provide a base line for comparison during analysis. The expected results of the study would be to show that the main thermodynamic force driving pyrocumulus formation is latent heat produced from the fire.