**Improving WRF/CAMx Model Performance using Satellite Data Assimilation Technique for the Uintah Basin**

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***Abstract:***

In this study we performed modeling data assimilation using the Moderate Resolution Imaging Spectroradiometer (MODIS) satellite observational data of surface albedo, snow and vegetation coverage to the meteorological model (WRF) and photochemical model (CAMx) for modeling case study in 2011. This data assimilation technique aims at improving WRF’s performance in characterizing land surface characteristics, and CAMx’s performance in simulating photolysis reactions and gaseous dry depositions. In a typical WRF/CAMx simulation, estimations of surface albedo and vegetation cover are based on long-term and outdated climatology data, and are influenced by other WRF estimated meteorology quantities. In comparison, MODIS data assimilation technique provides real-time characterizations of the land surface. We will discuss differences in WRF/CAMx model’s performances with and without MODIS data assimilation. Technical approach of WRF/CAMx model modifications to accommodate MODIS data assimilation will be briefly discussed.