

Environmental Characterization of the Atmosphere Using WACCM-X

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Researching the characteristics of the whole atmosphere can yield a variety of weather and climate understanding for the terrestrial and space environments. Of particular interest are the neutral species, wind, and temperature distributions from the surface to the middle atmosphere and across multiple latitudes. This is accomplished using data from the Whole Atmosphere Community Climate Model-Extended (WACCM-X) with the ionosphere, a model developed by inter-divisional collaboration at the University Corporation for Atmospheric Research. Presented here are the vertical profiles of neutral species, wind speed, and temperature of the troposphere and middle atmosphere up to 80 km. Preliminary results from a 10-year period show all three parameters vary temporally and spatially, particularly across latitudes and seasons. Ongoing work includes rigorous analysis, utilizing all years of WACCM-X data available.

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